

Bob Cooper's

December 18 2006

# SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

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the potential  
loser here?**

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Optus  
Screw-Up?**

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Vol. 13 ♦ No. 148

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Orbital Sciences Corporation

Tuesday, December 5, 2006

## For Investors

### "ORB" Stock Price

Orbital stock information  
from the NYSE

**'OPTUS THE SATELLITE IS  
FULLY FUNCTIONAL AND  
IS HAVING TRAFFIC RUN  
OVER IT ROUTINELY.**

**OPTUS IS WORKING TO  
ADDRESS ANY**

### News Bulletin

Orbital's Chairman and CEO David W. Thompson will make a presentation to investors and analysts during the 2006 Annual Credit Suisse/Aviation Week Aerospace and Defense Conference to be held in New York City on December 5. Orbital's presentation is scheduled to take place at 11:30 a.m. (EST). View the webcast, and presentation slides.

Orbital welcomes your interest in our company and strives to provide accurate, up-to-date financial information. We will provide several easy ways to request information and to contact us. Included are profiles of management and the board of directors, downloadable copies of financial documents (including 10-Q's, 10-K's, a Proxy Statement and our Annual Report), a list of frequently asked questions and the names and firms of the financial analysts that cover Orbital.

**(Spokesman for Orbital  
Science Corporation to  
SatFACTS Monthly query -  
this is the 'official word'.)**

We have also included an order form that allows you to order hardcopies of key documents. If you prefer, you can request these materials by calling (703) 406-5543.



## **Advertising in SatFACTS?**

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# SatFACTS MONTHLY

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This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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**Now year thirteen!**

## Not so amusing

A time will come when somebody will properly explain to us worker-bees why D1 got so screwed up between conception and testing. It may not be soon because, as we attempt to explore starting on page 7 here, there are four major players in this game of high stake poker and not one of them wants to crap in their own hat.

You can start on page 7 and struggle through a litany of concepts, perceptions, guesses and deliberate falsehoods or you can read this and then flip to page 18 where we share with you two highly sensitive 'insider internal memos' which pretty much bring us from design defect to the present reality.

Of the four major players, TVNZ aka Freeview has the most at stake here. TVNZ feeds their TVOne and TV2 (plus Maori and freebie DW et al) to the southern half of North Island (yes - that includes Wellington), and all of South Island on B1. Yes - that is B1 and that is today. Why? you ask. Commercial reasons - commercialS to be precise. As we have previously reported, TVNZ sells "regional advertising" breaking the country into a trio of geographic regions. There is Auckland-Hamilton north to the Cape, the southern half (including Hawkes Bay), and then all of South Island. They sell some commercials to folks like Coca-Cola on a national basis, and others to local businesses in Wellington, Christchurch and Auckland. TVOne and TV2 are carried by Sky but Sky has never been agreeable to carrying three different versions of TVNZ's two channels. So on 12.671, D1, one finds the *Auckland* area service. But with 600,000-plus homes (and growing daily) limited to watching TVOne and TV2 via Sky, it has become increasingly difficult for TVNZ to sell commercials to Wellington or Christchurch "regional advertisers" with only Auckland region commercials being available through Sky.

The TVNZ answer was to create, using B1 back when Sky also used B1, their own "experimental" transponder which as you may have noticed includes TVOne (Wellington), TVOne (Christchurch-South Island), and TV2 as well - times two. With some assistance from the software folks at Sky, anyone in the south of North island automatically received NOT the Auckland 12.671 TVOne and 2 services but rather the regional version telecast through TVNZ's own 12.483 B1 transponder. And ditto for South island.

Of course this in no way guaranteed that someone in Dunedin had their Sky receiver installer-tuned to the B1 TVNZ South Island version; they could just as well be watching the Auckland version. But TVNZ advertising sales people could say, with an almost straight face, "Oh yes - we have a special satellite feed that guarantees that everyone in Dunedin only receives the South island version" which of course is where the regional advertiser's paid-for messages appear. In a terrestrial-only world, with TVNZ until very recently also owning the terrestrial microwave links that tie the country together, they had internal bandwidth to create three different sets of content for each commercial break period. TV3, by the way, never went down this pathway largely because it would have trebled their terrestrial linking costs - money that went straight into the pocket of TVNZ controlled BCL - the link provider.

So now we have D1, sort of. Only it is not the D1 we were supposed to have but by a combination of dumb luck and human error, Sky was able to shift four of its transponders from B1 to D1 back in November. But TVNZ could not move to D1, because - well, start on page 7. So TVOne and TV2 for southern North, and South, are still stuck on B1. And every day B1 wanders further and further away from the intended geostationary position. TVNZ's Avalon uplink has already lost B1 (for up to 24 hours) and each time B1 shuts off those folks watching TVOne and TV2 in south-North and South simply lose these channels. And Maori. On a one-on-one basis, they can get both back by switching to the Auckland service on 12.671 - provided their installer left it intact. And provided, as happened for 20 minutes during Coronation Street December 5, TVOne has not mysteriously gone silent - lost its audio.

Tomorrow B1 will be further at the extremes of its 'figure 8' cycling from the equator than it is today. The first challenge here is that TVNZ's Avalon uplink can still find the oscillating bird. The next problem - and this is the BIG one - is sooner than later - a function of the way each individual dish was installed -homes will lose B1 at the figure 8 extremes on a dish by dish reception basis - whether TVNZ Avalon can find it or not. TVNZ is about to lose their ability to deliver separate advertising sales for southern-North and all of South. That's a major dollar ouch and there are some, including TV3, who are overjoyed at this twist of fate.

## In Volume 13 ♦ Number 148

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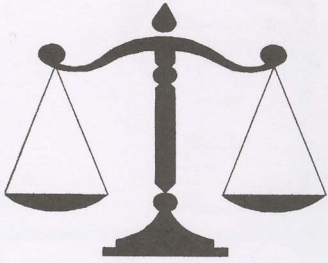
## -On the cover-

**Yes - but can Orbital spell VERTICAL?**



December 18, 2006



**Melbourne's "Secret" TV**

"Find attached order for S-band LNB. We have a full-time TV station on 2396.5 MHz located at Melbourne Fire Brigade 01, 101 Collins Street, using a 60 watt transmitter (500 watts ERP, vertical polarity) showing training films, advertising and GTV-9 links. A number of people have been receiving it using redundant ex-Galaxy S-band equipment - I figured with a proper S-band LNB and suitable antenna I can probably extend the coverage out to 50km or so."

Jeff S, Victoria, Australia

Depending upon their height above ground from 101 Collins Street, 50km should be quite doable when using the 0.4 dB noise figure, 50 dB gain LNB attached to a suitable 2.4 GHz antenna. See S-band LNB advertisement, page 14.

**Late SatFACTS-November**

"I have been a subscriber from issue #70 and as dependable as the sun coming up at the appropriate time, December aside, SatFACTS is always in my mail box by the 22nd if not before. But the November issue (#147) was a week late. Was there a fault here?"

Gerald P, NSW

Not exactly a "fault." Between October 17 and November 5 Coop was the unplanned and unwilling "guest" of a major medical facility in Auckland. But he's recovering and should be good for the next 147 issues now. Oh yes - Christmas mails will slow down delivery of this issue!

**Unhappy Chappie**

"I survive because I do not talk with Coop; Darwin was right. And you will never get the true story as you did not go to the source, relying on secondary information from advertisers. I am now retired and my trophy cupboard does not include your articles but I did teach the first course on satellite TVRO in Australia at RMIT and I was part of the steering committee on Pay TV in Australia. Bless you Bob, you try so hard to be a journalist but you sometimes need reminding the journalist's code: just the facts."

Michael as exon3@bigpond.com

Michael apparently has some "secret information" *only he knows* about D1's problems; see page 7, here.

**PROGRAMMER  
PROGRAMMING  
PROMOTION****UPDATE****DECEMBER 15, 2006**

**NZ's Canadian-owned CanWest Media Works** is suggesting leasing out two of its FreeView-available TV programming channels. CanWest has entitled to six satellite programming channels and initially will function with only TV3 and C4 - although industry rumours have suggested without confirmation that TV3 will initiate with 16:9 video. Competitor Sky has revenue from advertising and subscriptions while government owned TVNZ has been allocated nearly \$80m in funds (over five years) to cover the costs of creating two or more additional FreeView channels. If CanWest were to sublet (lease out) 1 or more of their six satellite programming channels, the revenue from this would - in theory - be used to allow the broadcaster to create one or two new channels of its own. Alas - all of this speculation is significantly dependent upon how D1 finally sorts out. Costs involved? Read on ...

**About costs** to be a part of the FreeView satellite package. Like many things in life, they are "commercially sensitive" and anyone who knows them is sworn to nondisclosure. Alas, memos have a way of leaking and some of these (witness pages 10 [internal Sky technical memo] and 18 [unnamed upper level participant] ) end up here, or on a web site, or in "The Herald." Follows an example of this sort of information. So - what does it *really* cost to use one of the Kordia (ex-BCL) programme channels on D1 (yeah - right - that assumes that FreeView ever ends up on an appropriate D1 transponder)??? First there is the *transponder capacity* fee. This one is especially interesting because it must be paid in Australian dollars. We'll return there. Then there is something Kordia calls "*head-end fee*" which is paid in NZ dollars. There are at a minimum two more charges: The cost of *transporting* your programming from wherever it begins to Kordia/BCL's uplink site. And, a nice six figure number for "*annual membership* in FreeView". We assured our leaked-memo source we would not reveal these individual charges but nobody said we couldn't add them altogether and tell you the total: NZ\$702,360 not including GST (where applicable - one assumes it is not required for the Australian dollar segment) and not including whatever cost is involved in transporting your programming from you to the Kordia/BCL "head-end" so that it can become part of a multiplex. And that is for a SD (standard definition) grade of service. HDTV? *Don't even ask!* There are 8,760 hours in a standard year. That works out to \$80.18 per hour to be available on (FreeView) satellite - \$1,924.28 per day. And that is *before* you create programming and operate your own channel. As our source notes, "*transmission costs won't leave much change from NZ\$800,000.*" One more number to ponder: If 18 programmers (the capacity of one transponder) pay the Australian dollars demanded just for transponder space, more than NZ\$9,500,000 is changing hands each year; NZ\$142,500,000 over 15 years.



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### **The past comes back**

"I have been a part of and followed with personal participation the development of television in this country. I recall, rather vividly, the days when the Post Office owned and operated the original TVNZ network and the growth that followed. But I will be damned if I can work out where the Television New Zealand concept when astray. If I understand what is happening, TVNZ is totally dependent upon the delivery by Sky (or others) of their programming through satellite to what now amounts to something in excess of 42% of all Kiwi homes. Ten years ago, Sky was a metropolitan-only terrestrial service of limited appeal, while TVNZ with subsidiary BCL owned and controlled all of the prime (then VHF) TV channels and the sites from which they transmitted. Surely out there in the SatFACTS readership there is one or more people who can trace the loss of the independence of our national treasure TVNZ. I am in my 70s and cannot fathom a return to the 'good old days' but I would like to think that pioneers such as myself building transmitters and installing relays 30 years ago was not all for naught."

Name withheld upon request

And then there is the Rupert Murdoch option; another "70s" guy.

### **Officially noted**

"I read in SatFACTS that you are still referring to BCL, and suggesting we are 'the technical arm of TVNZ'. We have not been a part of TVNZ since 2003, and have now rebranded the entire company in Australia as well as New Zealand - we are now Kordia."

Emma Wilkinson, Kordia

So noted. Doubtless there was a major naming effort by ex-BCL for this one, possibly involving outside "creative people." Our desk 'Oxford' finds no conflicts with k o r d i a which qualifies it as a new entry in the next dictionary edition. Check yourself - it will fall immediately after Koran and just ahead of Korean. "an interesting word neighbourhood" indeed.

### **Out of touch - permanently**

"I am out of the office until November 19th. I will respond to your e-mail upon my return or as soon as possible. If this is an emergency, please contact ...."

Ali Atia, President  
Orbital Sciences Corp.

November 19th came and went. As did November 30th, December 7th and so on. We gave them several opportunities to set the record straight - alas, they did not.

## **HARDWARE EQUIPMENT PARTS**

## **UPDATE**

**DECEMBER 15, 2006**

**Hyundai HSS-760A?** Never heard of it - yes? Interested in Moteck motor driven dish control? You will find our review starting on page 20 here interesting - different. It is all about attitude - and how one distributor has been able to exert major influence on a major manufacturer to "get it right - the first time" - before releasing a product.

**Digital television in China** is in a failure mode. It seems that 90 digital pay channels functional in 150 Chinese cities are losing bucks - big time. And there is now a concern that Chinese viewers are not able, willing, certainly not anxious to 'step up to digital' when it costs more money (for the receiver) and for the pay-per-channel costs. Normal analogue cable TV costs under US\$2 per month for the channel package while digital TV channels typically charge US\$22.50 per channel. You can lead a horse to water - you cannot force him to drink.. US\$22.50 per channel? Are they mad???

**Bad marketing idea number 199.** Telecom (NZ) has a brilliant plan to insert itself into the revenue stream for pay television; they plan to partner with TVNZ's consortium creating FreeView. Telecom has major telephone/broadband competitive problems with the relaxation of interconnection rules so it has been searching for some way to offset their anticipated reduced revenues as customers vacate their expensive monopoly services in 2007. Their brilliant plan? Think of Balbrick on Black Adder and his turnip. Telecom is going to invest money-time-energy into FreeView. Telecom had multiple choices including boiling the turnip and eating it for dinner. They have chosen to skirt around what other telcos are doing - offer IPTV (Internet Protocol Television) - programming on a per viewing basis for a fee. In a nutshell, they don't think IPTV will make money. One major reason for their decision is the hundreds of millions of dollars Telecom would have to invest just to "tidy-up" their ancient copper wire network to allow video to get through the lines to customers. Backing FreeView is an easier, less tricky, no-effort, choice. Under the new plan, not certain to mature and certainly not guaranteed to get beyond the press-release 'hype-our-stock-value' stage, Telecom will help FreeView create a "combo-STB" that will include PVR capability to record programming. Telecom has hired a staff of ten to make this happen, will add another six but does not plan an active interdiction of the FreeView project before "the first half of 2008." Good decision - given that B1's FreeView service will die long before then anyhow.

**Hills NZ?** We reported (SF#147) they were planning their own MHEG-5 STB for the New Zealand FreeView market. There is an apparent "oops" here - seems TVNZ found their submitted engineering sample deficient and refused to certify it as "compliant." Just for the record - TVNZ has found no STB compliant other than their own private version which of course means they are for the moment the only "approved" STB.



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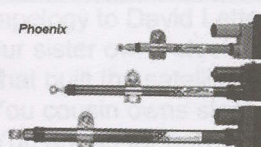
**Motek 2100 \$95ea**



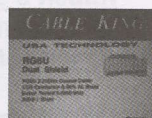
**SuperJack EZ2000  
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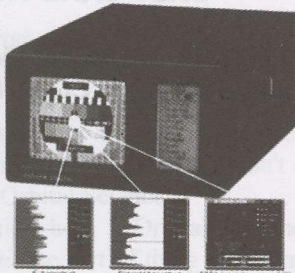
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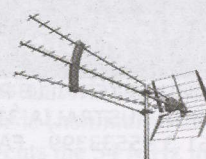
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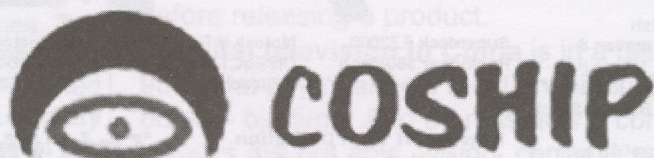
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## Covering up the 'cover-up' for a defective satellite: D1

Pretend for a few minutes you are a wealthy person planing to build a new 16 room home. You have a vague sketch of the home on paper, something you copied from elsewhere. Your instructions to the contractor will be, "(1) Don't spend any more money than absolutely necessary, (2) use existing technology - this is not an exercise in 'new technology', (3) finish it so that rooms can be used for a variety of unrelated purposes - such as bedrooms, or home schooling, or even for storage."

The contractor returns with a set of blueprints, especially proud of how many expensive corners have been cut by using off-the-shelf, even recycled, materials. The blue prints have one unusual "language feature;" the windows and the doors are not called "window" or "door" - rather for reasons only the builder understands, windows are called "A" and doors are called "B" on the drawings; he explains "this is the way we always do this." When you approve the drawings and leave the project in the builder's hands for a year, you commit to your memory: "Windows are A, doors are B."

A year passes - progress reports flow to you with photos of the house in various construction stages. You initial each report with appropriate comments concerning what you see in the reports. The windows and doors will be installed in the empty holes at the very end of the project.

The day finally arrives for your first inspection of the completed home. The project looks impressive, the engineer's test reports are highly positive about the building's strength and skilful finish. And for the first time you walk into the home through a garage door and begin a tour. You are impressed until entering one wing of the home with 8 self-contained rooms. Each room has two doors and one window, some larger rooms have three doors and no windows.

"A = window" and "B = door." On the master plans doors and windows appear either identical or very similar; only the "A" or "B" identification conveys what fits into each hole. Eight rooms have windows and doors reversed.

This is a parody. "A" = not a window, rather it is a substitute for a technical term; let's call it "Vertical Polarisation." and while we are making this shift, "B" will = "Horizontal Polarisation."

To further unwind the parody, nobody is building a home but Orbital Sciences Corporation is building a new satellite - D1 - which will have windows (vertical polarisation) and doors (horizontal). And they will not be called "vertical" and "horizontal," they will be labelled "A" and "B." Don't ask why - it is simply "a tradition at Orbital Sciences."

So let's cut to the quick here - Orbital has their own terminology for polarisation, the sort of thing engineers create when they are paid far too much money and have an excess of time on their hands. Orbital builds low earth and geostationary satellites for military and in this instance Optus. Inside their shop in Virginia, they speak of "A" and "B" whereas in this instance their clients in Singapore and Sydney refer to vertical and horizontal. Orbital built D1 following "A" and "B" terminology while at Optus engineering somebody neglected

### Ten Reasons to lie about a satellite's health

(with no apology to David Letterman)

Reason # 10: Your sister owns stock in the company that built the satellite

Reason # 9: Your cousin owns stock in SKY NZ

Reason #8: You are so far down the 'chain of command' that you don't know the truth

Reason #7: OSC, the satellite builder, has "nothing to say" officially which means, of course, there is nothing to say - and that is good enough for you

Reason #6: Rupert Murdoch called you, personally, advising you to "stop talking about D1" with some veiled suggestion that you should, "Remember what we did to O.J. Simpson."

Reason # 5: Some guy from South Africa has left threatening messages on your answer phone

Reason #4: George W. Bush sent you a message warning that D1's problems have been caused by al Quadea

Reason #3: Optus told you to, "take two aspirins and call us back in the morning"

Reason #2: You work for TVNZ and you don't want to deal with being on the 'opposite polarity' from SKY

Reason # 1: Peter Escher assures us, "there is nothing wrong with D1"

to notice that for at least eight transponders intended to serve New Zealand, they were putting windows where the doors were supposed to be, and vice versa.

For "New Zealand transponders 1 through 8" vertical became horizontal - and of course nobody is willing to take the responsibility for this oversight. This error was not discovered until D1 had been launched, and being tested at 164E.

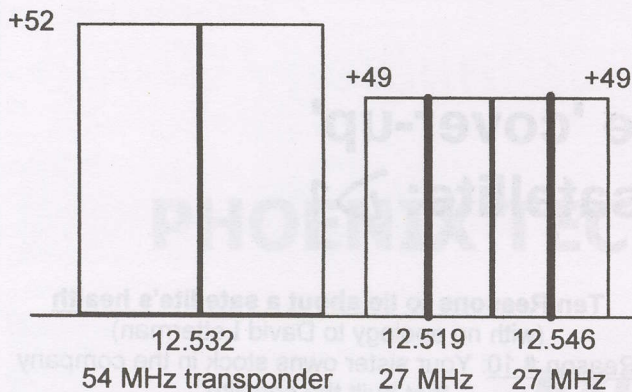
### Which means what?

There is a significant shortage of real information here. Orbital would like it best if nobody knew there has been a mistake. Optus would like it best if they could pin the blame on Orbital and perhaps even collect a few tens of millions of dollars as a "penalty" for the mistake. Sky NZ would like it best if nobody knew they have become the victim of this error and their 15 year future using D1 may ultimately be significantly compromised. And FreeView - that disorganised consortium of New Zealand television broadcasters already put behind the eight-ball by their competitors at Sky - are totally at the mercy of the error. We'll explain.

### Half-transponder optimised

Sky NZ utilises a digital transmission technique perfected by BSkyB in the UK - if a transponder is (nominally) designed to be 54 MHz (megahertz) wide, Sky cuts the 54 MHz in half and using two separate uplink transmitters sends one group of channels to the bottom half (27 MHz) and another set of channels to the upper half. Any 54 MHz wide transponder can be cut in half and treated as a "lower" and "upper" partial bandwidth segment but if you do this the total output power of the full transponder must be derated (turned down, backed-off)





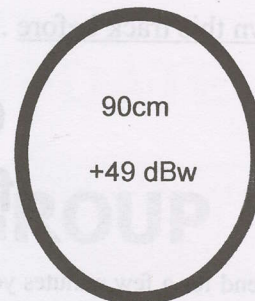
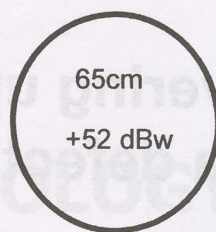
Normal transponders passing a single (MCPC) carrier can operate to full rated output power (left). When operated in half transponder mode (right), passing two (MCPC) carriers, power must be reduced by 3 dB minimum resulting in 3 dB less signal on ground.

by approximately 3 dB. A transponder with a single digital carrier going through it, and rated at say 52 dBw output power, ends up being turned down to 52 - 3 (dB) or 49 dBw when it is operated as 27 times two rather than 54 times one.

A 3 dB reduction in fully saturated transponder output power changes the number equation on the ground. Where, under clear skies (no rain or moisture attenuation), a 65cm reception dish will function properly (with a safety margin) at 52 dBw, cutting the power at the satellite back to 49 dBw means the on-ground reception antenna must be increased by 3dB (of gain); 65cm becomes XX cm.

The satellite maker guys, Orbital in our example, can do engineering things with any transponder that they know in advance will function in a half-transponder format. They can save, regain, that 3dB backoff so that Sky NZ can use their preferred half-transponder format and still achieve 52 dBw in satellite radiated output power. And that means the 65cm dishes are going to be satisfactory. But they only do this on "special order" because "half transponder power conditioning" costs extra dollars and raises new engineering challenges (which directly relates to the additional costs). So D1 was designed that:

1/ Eight transponders, each 54 MHz wide but in fact 27 MHz wide times two, internally, were "half transponder power conditioned" so that Sky's signal levels could in fact reach 52 dBw.



The 3 dB "on ground" penalty. To maintain the same margin of signal to compensate for rain fade and equipment ageing, effective dish size must be increased, creating additional "on ground gain" for the system and satellite to earth link.

2/ And to match the B1 satellite, which D1 has replaced, these eight transponders would occupy the same spectrum space as B1 did, and,

3/ Be vertically polarised because out there on the ground in New Zealand were more than 600,000 customers with software directed receivers already locked onto vertical.

Would that be "A" or "B?" A "door" or a "window?"

Well, as we all mostly now realise, the 8 half-transponder power conditioned 54 MHz segments designated "NZ1" through "NZ8" ended up being doors rather than windows; they are connected to a horizontally polarised transmit antenna, boresighted on New Zealand. Yes, that would be the polarity that is opposite to Sky's pre-existing 600,000 installed satellite antennas. Somebody, a team of somebodies, stretching from Dulles (Virginia) to Sydney and Singapore rubber stamped this as approved. "What do you mean the bedrooms are supposed to have 3 windows rather than 3 exterior leading doors???"

Let's see what the fix-it options might be

The most obvious fix is for Sky NZ to tell 600,000 existing receivers to switch from vertical to horizontal. But before we get there, some additional background about this satellite.

There are 16 transponders on board D1, but Orbital built-in a frequency re-use plan that works like this. New Zealand is one "boresight" - a target area to which one or more transponders can be directed. Australia is another, and by good luck the two

#### D1 transponders in use to Australia

AuTP10 /12.322H  
 Au + NZTP 3/12.420V  
 AuTP11 /12.420H  
 AuTP12 / 12.451H  
 AuTP12 /12.469H  
 AuTP12 /12.487H  
 AuTP13 /12.514H  
 AuTP13 /12.532H  
 AuTP13 /12.550H  
 AuTP14 /12.577H  
 AuTP14 /12.595H  
 AuTP14 /12.613H  
 AuTP15 / 12.637H  
 AuTP15 / 12.681H

#### D1 transponders in use to New Zealand

Au + NZTP1 / 12.295V  
 Au + NZTP2 / 12.337V  
 Au + NZTP3 / 12.420V  
 NZTP5 /12.519V  
 NZTP13 /12.519H  
 NZTP5 /12.546V  
 NZTP13 /12.546H  
 NZTP6 /12.581V  
 NZTP6 / 12.608V  
 NZTP7 /12.644V  
 NZTP7 /12.671V  
 NZTP8 /12.707V  
 NZTP8 /12.734V



# Controls on aerials signalled

By MICHELLE LOTTER

More than 300 submissions have been received over a controversial plan to control the size and number of aerials and satellite dishes on North Shore homes.

North Shore City Council environmental policy adviser Jeremy Wyatt says 305 submissions have been received on a proposed change to the district plan which would give the council a say on the placement of large antennas and aerials.

Mr Wyatt says most submitters agreed on some parts of the plan but wanted amend-

ments. In the plan, aerials are defined as receptors of VHF and UHF television and radio services while antennas are defined as dishes and panels.

Under the proposed plan owners would need to apply for resource consent to install antennas that were more than 2.5 metres high or bigger than 25 percent of the height of the structure they are attached to.

Consent would also be needed to install more than two antennas above one metre in diameter on a property. People wanting to install more than two

aerials per residential unit would also need consent.

North Shore Radio Amateur Club does not want height limitations on antennae and the New Zealand Association of Radio Transmitters says antennae and supporting structures on buildings should be allowed up to 18 metres high.

The restrictions would apply to aerials and antennae installed after the plan change came into effect.

TVNZ has submitted against new rules which could restrict anyone from using their new, free to air digital

television service FreeView.

TVNZ digital group spokesman Rick Carlion says the group is happy that two antennae and two aerials are permitted per household but is concerned that only one aerial and antenna is permitted if more than two residential units share one site.

Mr Carlion says this would limit the services multi-dwelling buildings receive because one aerial will not provide enough reception of the full range of VHF, UHF or satellite television or radio channels.

He says it is "premature and prejudicial" for

additional insurance that there will be no interference between the two. So in fact, if there was sufficient market for such an approach, one satellite package could in our example have not 16 but 32 separate transponders on board - 16 capable of illuminating New Zealand and 16 more for Australia - all using the same 500 MHz of spectrum space. Is that the ultimate? No, only 50% of it.

First think about bandwidth. It is fixed by international treaty into bands (SF#147, FSS and BSS) which generally speaking

are 500 MHz in width (such as our most familiar band, 12.250/12,250 to 12.750/12,750). If a transponder is nominally 54 MHz in width (or 27 times two = 54), then into 500 MHz we can squeeze 9.26 transponders. Nominally, this works out to 8 because between each transponder, and at each end of the "band" (near 12,250 and 12,750) there are smaller segments called guard bands - little "slices" of spectrum to keep adjacent transponders (such 1>2>3) from overlapping into one another.

So how does 8 become 16? Polarisation. If there is room for 8 x 54 (+ guard bands) in 500 MHz, on "A" polarity (sorry Orbital - but you started this!), we can now flip our polarisation to "B" and gain 8 more transponders; 16 total. All 16 of these *could* serve, for example, New Zealand and then inside the same "satellite housing" *could be* 16 more to serve Australia. And this is but the start of the *possibilities*. New Zealand and Australia are south of the equator (remember - the satellite is located directly above the equator) and in the same satellite housing it would be possible to stick 16 more, all using the same 500 MHz of space, to boresight Japan, another 500 MHz to boresight Indonesia and so on.

And then we add an additional, new 500 MHz band

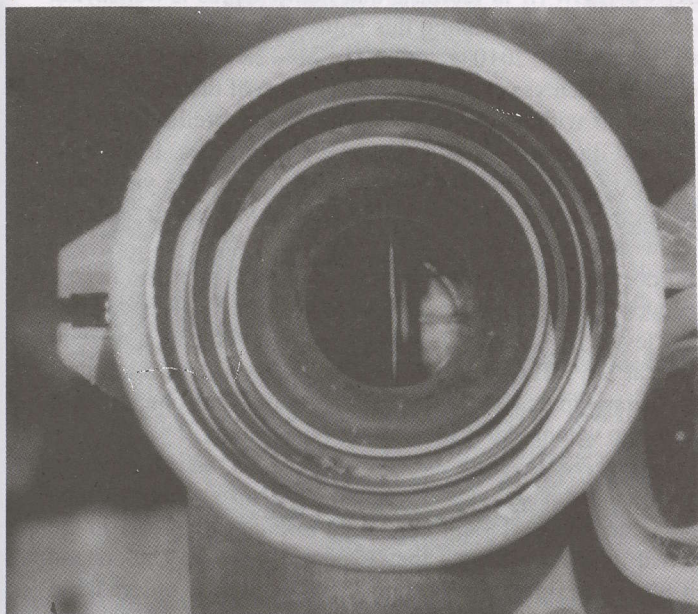
D2, if there is going to be a D2, carries all of this a half-step further down the design road. If you can serve New Zealand, and Australia, separately from one location (160E) with 16 transponders (or 32 half transponders) each, using 500 MHz of bandwidth, how about doubling that to 1,000 MHz? Now we are talking the reality of D2 - which adds 11.7 (11,700) to 12.2 (12,200) GHz to the same "container" as the original 12.25 > 12.75 GHz D1 capabilities.

D2's original intended plan was double-fold. By co-locating it at 156E with existing C1 (a 12.25-12.75 GHz only satellite), and by sticking 11.7-12.2 plus 12.25-12.75 on board, D2 could

As reported in the (Auckland) North Shore Times (December 1), Auckland's fastest growing residential and business area is proposing to limit aerials (antennas) on homes. If adopted as now proposed, a second antenna/aerial of any type of size could require special permission (read "fees"). Terrestrial, satellite, amateur, - any type of antenna system would be subject to regulation. In multiple dwelling buildings (two or more families) only one "aerial" and one "antenna" - two total - would be allowed without special zoning hearings, fees, and permission.

are physically separated by enough distance that if you use a transponder (such as 1) on the NZ boresight beam, the same transponder can be "reused" again on the Australian beam. Without interference. And as the designer of this system, you can alternate the polarisation between the NZ transponder 1 (call it "A") and the Australia transponder 1 (call it "B") to add

Virtually all Sky NZ supplied LNBf devices, including this aged Sharp model, have a pair of internal 'polarisation probes' which were designed to switch from vertical to horizontal on command from the satellite provider. But what percentage of these 600,000-plus units still function as designed and how many receivers stuck on vertical for years will even respond to a satellite directed command? Unknown.





#### Sky Technical Bulletin - A warning about pending switch to Horizontal

"Due to Sky's **upcoming move to D1's horizontal transponders**, some testing on the H pole is required ahead of time. For technical reasons we will be using the same frequency that is currently being used by most if not all installers for dish alignment (Editor's note: 12.519/12.546V now joined by the test service on 12.519/12.546H).

Because of 'frequency sharing' of both V and H pole, you can no longer use this transponder for cross pole alignment (\*). As of November 22, an alternate transponder must be used for cross pole alignment. The suggested frequency is 12.734 (T8U) which equates to an L-band frequency of 1,434 MHz for single LNBs and 1,984 MHz for dual LNBs. Note that this may change if and when another carrier is introduced on the H pole. Additional: Due to

this being the first time we have had to deal with signals on both polarities, there is the likelihood that if an installation has a poorly polarised LNB, there may be interference to the existing streams on transponder 5 vertical (streams 3 and 4) (\*\*). This maybe be in the form of pixelation or simply a degradation in BER (Bit Error Rate). If

there are trouble calls pertaining to any channels on either of these streams (\*\*), you should double check the polarisation alignment. For all new installations particular care **MUST** be taken when performing the cross pole alignment, by using the normal 'nulling for minimum' on the opposite pole. If not, there is a good chance that a revisit will be required to correct the problem. Cross pole alignment is now more critical than ever!"

\* - Cross pole alignment is a procedure best performed with a spectrum analyser but possible with a quality SLM (signal level meter) wherein the non-desired polarisation signal is 'nulled' (reduced to a minimum reading). Peaking of a signal even with a spectrum analyser is tricky at best because very small incremental changes in the rotation of the LNB housing (and the antenna probe inside) result in only minor changes in the desired signal - the "peak signal" on the desired polarisation is much wider and broader than the "null" of a non-desired signal from the opposite polarity."

\*\* - 12.519V (Tr5) has been carrying: (1) Sky Movies 1, (2) Cartoon Network Australia, (3) Sky News NZ, (4) J2, (5) Sky TV promo, (6) CTV 1 + 8 radio channels. 12.519H (TR13H) has been carrying the identical services. 12.546V has been carrying: (1) Sky Sport 1, (2) The History Channel, (3) The Living Channel, (4) Playhouse Disney Asia, (5) Spice 2, (6) Food TV, (7) CTV2, (8) CTV3, (9) Phoenix Chinese + 6 radio services. 12.546H (NZTR13) has been carrying the identical services as V.

provide expansion room for Austar + Foxtel into Australia, and the same for Sky NZ (see SF#147, p. 8). That's purpose one. Purpose two is more in the line of insurance. Satellites quit, sometimes long before their (typical) 15 year lifetime. By having D2 parked at 156E, functional on 11.7-12.2 and 12.25-12.75, it would serve as a backup for either Australia or New Zealand - should C1 or D1 fail.

#### Now - who suffers with a defective D1?

As this is written (early December) Sky NZ is utilising 4-1/2 transponders (see table, p. 8) on D1 vertical and one transponder on D1 horizontal (see above). None of these are the originally planned vertical NZ1 > NZ8 half-transponder optimised 52 dBw transponders. The 4-1/2 vertically polarised transponders (3, 5, 6, 7, and 8) are not delivering 52 dBw into New Zealand - the actual level is in the region of 49 dBw although you won't hear that from Optus, Sky or Orbital. The footprint in use is one created to serve either New Zealand, or, Australia but not optimised for the half transponder format. What Sky NZ has is approximately the same signal levels on the ground as the ageing B1 provided. The lone horizontal transponder is akin to a "test" for Sky - can their software in a variety of home STBs dating back now nearly 8 years properly switch the LNBs from vertical to horizontal to access the 12.519/12.546 half transponder, times two, services?

*Sky's albatross first.* They expected to have 6 full power vertical transponders at 52 dBw. What they now have are four and one half less than full power verticals and one less than full power horizontal. Sky had elected to "say nothing officially" about their present situation, to neither deny nor confirm there is a shortfall here. If you were negotiating through Optus with Orbital, you would possibly be motivated to adopt the same approach; why piss off the guys who are dealing the cards?

#### *Sky's options:*

1/ Shift from 4-1/2 lower power verticals to 5 or 6 full power horizontals. That would gain them 3 dB as a minimum,

perhaps more. Alas, nobody - least of all Sky - knows how many of their pre-existing 600,000-plus dish installs would respond if they sent a data message down the line that said, "switch now to *horizontal*." What percentage of the present receivers, covering generations that go back to brands from Zenith and prior, even know or remember how to switch the LNB voltage (thereby changing the LNB from vertical to horizontal)? Suppose Sky sent out the LNB voltage switch command and 10% of the receivers failed to switch voltages? 60,000 suddenly non-working Sky installs? Not something you would like to do at Christmas time! Still, as the above Sky technical advisory clearly states, they were (in late November) at least planning to switch everyone to horizontal. Hopefully not on Christmas day!

2/ On the other hand, if they elect to stay with the present lower power, there is more loss here than simply not having enough transponders to grow-with. There is the fact that today's 49 dBw (if in fact it is that high - Optus is not saying and Orbital is stone walling this entire discussion) is going to deteriorate - by 2010 it could be 47 dBw or lower and decreasing each year thereafter. That is one of the reasons why you start off with 52 dBw - over time, as the satellite ages, the EIRP will diminish - it is a simple law of physics. If 49 dBw barely works today with 65cm dishes, go out five years and ask yourself, as Sky, "*What happens when the output drops to 47 dBw and below?*".

So does Sky have a choice here - can they afford to accept B1 levels from D1 when D1 is brand new and headed for lower levels in the future? What would you do if you were in charge at Sky? They bought and presumably are paying for 52 dBw - from Optus. Orbital may have screwed this one up but it is Optus to whom Sky is looking for repatriation.

*And there is Optus* - caught between an engineering department who did not understand the difference between "doors and windows" and a hundred million dollar box in the sky that does not do what they expected it to do. Understand that Sky is a "rider on a bus" and although they ordered and



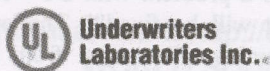
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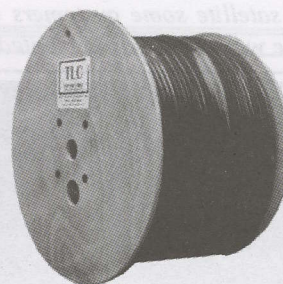
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### Nobody knows nothing - nobody talks!

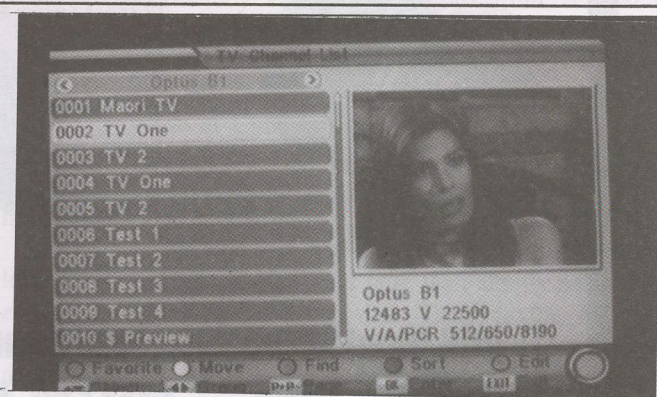
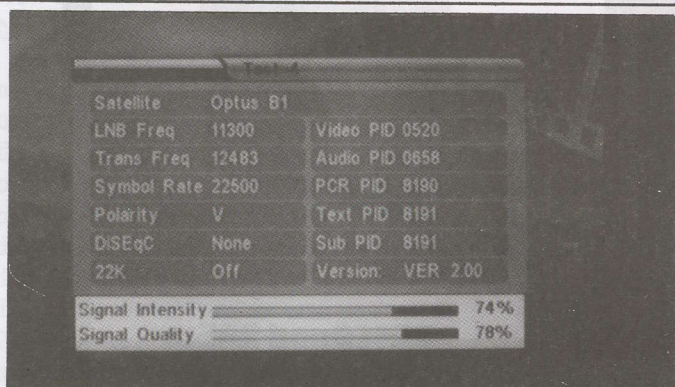
As our "Sky Technical Bulletin" release (page 10) here illustrates, Sky in late November appears to verify, at the engineering level, Sky is seriously considering moving their full service on D1 to horizontal - the ill-fated NZTr 1 to NZTr8 group which unfortunately was mis-wired at the factory. The "test" on Tr13 - 12.519 and 12.546? This is NOT on the half-transponder optimised 52 dBw beam. It is at best 49 dBw, 3 dB lower than Sky was promised. Craig Sutton (Apsattv) has collected reports from Sky installers and others throughout New Zealand and here is our summary of his report to us. (1) Sky NZ is gone in Norfolk island- where previously 2.4m dishes worked fine (even a 4m at the sports club has quit working). (2) With very few exceptions, the D1 present vertical service from D1 is virtually identical to the previous B1 service (see illustrations below). (3) The split-beam (NZ and Australia) "tests" on Tr3V (carrying TCM Australia, Playhouse Disney Australia, Documentary Channel, CCTV9 and something unusual called 'Star Plus') appear to be very similar in level to the other NZ-only 49 dBw replacement signals; at most locations. One measurement in New Plymouth found it to be 2 dB lower in level than the substitute vertical signals - our own test 500km north of New Plymouth found the 12.420V signal +2 dB from the others - one of those things you might expect from a split-beam (NZ + Australia) pattern.

expected a ride on a seat that had fully functional coil springs, they are now sitting on a wooden board seat in something less than anticipated comfort. At some point, more likely in several dozen points in time, Orbital sent copies of plans to Optus engineering and Optus engineers travelled to Dulles, Virginia to "inspect" the progress on D1. That nobody apparently worked out the difference between "doors" and "windows" has to, at some point, fall on the shoulders of one or more individuals at Optus. Can Optus bring a suit against Orbital for the mess-up? Possibly, but not likely - this assumes Optus personnel "signed-off" on various stages of planning and completion without recognising that doors and windows - "A" and "B" - were not the same thing.

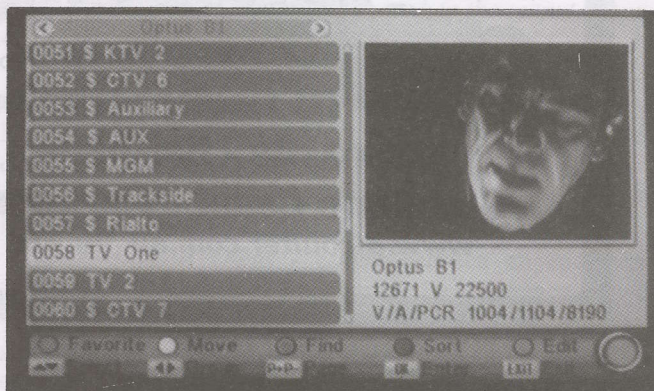
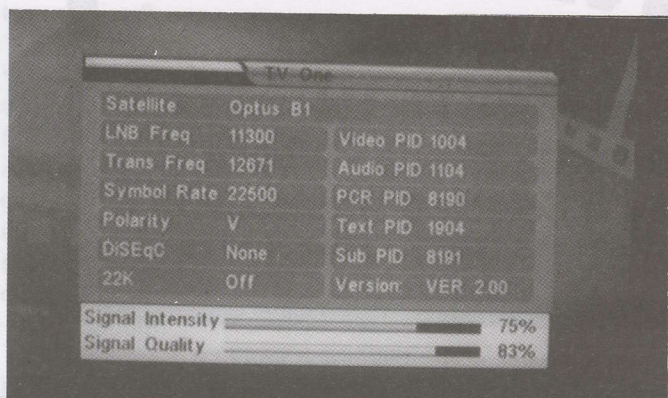
Optus has released, as best we can determine, no explanation of D1's faults and as reported in SF#147, only a very terse statement from an Optus spokeswoman ("*a configuration issue - the part of the satellite some customers use might have to change but service would not be interrupted*") has come to our

attention. A parallel? You purchase a first-class seat on an airliner and they stick you in coach and hand you a boxed lunch; you would still arrive at your destination - a "configuration issue!"

*Orbital Sciences Corporation?* What can you say about a firm that speaks in a language that their customers do not understand? Is one or more Optus people totally at fault here because they did not understand that "A" and "B" are not the same as "horizontal" and "vertical?" SatFACTS sent six Email messages to various Orbital personnel, starting with the Chairman of the Board and working down through various levels of marketing and engineering. Our message was simply, paraphrased, "There is a problem with D1 - can you explain what it is and how it will be fixed?" The only answer we received before December 5th came from an automated response software program from the Chairman of the Board advising us he would be out of his office until November 19th and would respond upon returning. We are still waiting for that



Above - NZ's TVOne via B1 (12.483) with an indicated signal level of 74% and signal quality of 78%. Below - NZ's TVOne via D1 with an indicated signal level of 75% and a signal quality of 83%. The two signals were monitored at SatFACTS for more than a day in late November. What this tells us is that on a 65cm dish with a Sky provided Sharp brand LNBf, the D1 "advantage" was virtually unmeasurable.



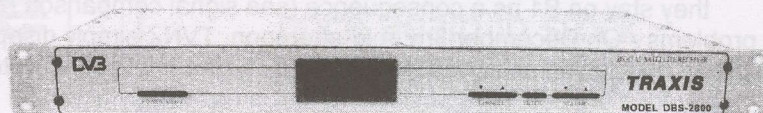




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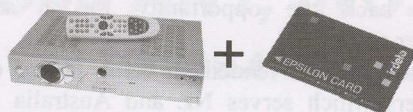
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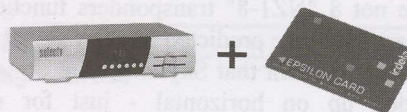
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For TVNZ - If there was no *bad* luck - there would be NO luck at all!

*Pity FreeView.* First they have suppliers such as Maser adopting their private trade name (FreeView or FreeView - your choice) for products, then it turns out they failed to properly trademark the name so it seems not to be their's after all. Then along comes D1 and its transponder wiring problems creating the possibility "there is no room at the inn" for their FreeView service - unless they agree to sign-up for "the manger" - where have we heard this story line before??? And so when Sky jumps off of no-longer-stable B1, there is no room for TVNZ (at this point) on D1 - and they stay on B1 as a consequence (see signal comparison report, page 12). Alas, even that decision has problems - On December 3rd, mid-afternoon, TVNZ simply disappears from B1. As you can fill in for yourself, the rushed conclusion assumed B1 had finally bit the final bullet. Note quite. Remember B1's no longer geo-stationary - because the satellite's positioning fuel is essentially gone, B1 has been allowed to "drift" in a figure 8 pattern.

Each day that passes increases the size of the figure 8. To keep the uplinks connected (from NZ to B1) has required either manual (hands-on intervention) or automated uplink dish tracking - to follow the satellite in its figure 8 pattern. When you are using 6-11m uplink antennas at Ku, the beamwidth is so 'tight' that even a modest figure 8 causes the satellite to travel beyond the uplink beamwidth; no signal into satellite, no signal out. So on December 3rd, as TVNZ's Rick Carylton notes in a "all hands go the pumps" rushed press release: *"The TVNZ channels disappeared (from B1) after a fault in the satellite tracking system at the Avalon TV Centre; technicians have been working ever since to diagnose and fix the problem."*

When B1's TVNZ service quits - well, the south of North Island (Wellington region) and all of South Island lose TVOne, TV2, Maori and others. And not just to that small number of non-Sky dishes - for all Sky viewers as well, located within those two geographic areas. An expensive 24 hour period without TVOne, TV2 advertising reaching all of the normal viewers (see Comments - page 1, here).

Sky responded by creating an emergency version of Maori TV (on 12.608V but of course virtually nobody knew it was there - do you risk (as Sky) sending an emergency alert update to 600,000 receivers to cover a problem that might not last long anyhow?

TVNZ's problems did not end with a return to B1 on December 4th - just after 8PM local Tuesday December 5th, as Coronation Street was beginning, TVOne audio disappeared on all feeds - including through Sky. The audio problem persisted for around 20 minutes but in the interim Sky and TVNZ phone lines went into melt-down; not very good timing for loss of audio! Alas poor Warwick, TVNZ will survive.

response. For an update on Orbital's response to our queries, see page 1, here.

If you were Optus, how would you create a lawsuit challenging Orbital? You are at a distinct disadvantage - because one or more of your (Optus) employees "signed off" after inspecting plans and/or actually visiting the Virginia factory and seeing the work in progress. Suing, in America, is a national sport and probably not the best approach anyhow. What Orbital would least-like is a full blown press-covered series of reports that somehow made Orbital look like asses. On the other hand, making Singapore-based Optus engineering management look like donkey behinds would not encourage future Orbital customers to even visit the Virginia factory unless they brought along a number of witnesses and a practising attorney.

*Nobody wins here* - which is precisely why *nobody* is saying anything, officially.

*And the odd-man out in all of this - FreeView.* You have got to feel sorry for these guys - there is almost nothing going their way. FreeView (BCL/Kxxxxx) has a signed contract for one (Tr4) of the eight "NZ1-8" transponders. That would be a vertical transponder, to be on the same polarisation as Sky. Alas, there are not 8 "NZ1-8" transponders functional at the moment - at least not at the predicted 52 dBw signal level.

Suppose for the moment that Sky ended up on vertical and FreeView ended up on horizontal - just for discussion. Remember that there will be the temptation - if not the reality - that existing dishes pointing at D1 for Sky will be "split" and used to also feed a FreeView receiver. Second (third, etc.) Sky receivers cost \$25 a month extra - why not simply place a FreeView receiver on that kitchen or bedroom TV set (more than 65% of NZ homes have two or more TV sets)?

Alas, if Sky is on "A" and FreeView is on "B", while the LNBf may be capable of switching on command from vertical or horizontal, to activate the FreeView receiver requires

switching away from the polarisation of Sky. And that shuts down the Sky receiver (or the reverse for FreeView if the LNBf is left on "A").

For FreeView to succeed, it will be essential that it be a "plug and play" package - connect to the existing Sky dish, hang a splitter in there, and activate the FreeView receiver with no additional accessories. Sky can almost guarantee FreeView's failure by simply staying with a D1 format that leaves no room for FreeView - except on the *opposite* polarity.

There are of course technical solutions - as Europeans have created. The original Sky LNBf could be replaced with an "always-hot" dual pole LNBf. A second dish could be installed, for FreeView only (except perhaps on the Auckland North Shore - see boxed report here). Or, where available, viewers could install UHF terrestrial antennas for FreeView DVB-T reception wired directly to their second (etc.) TV receivers.

All of these options make the FreeView transition less appealing to consumers.

On the other hand, if Sky does end up switching all of its services from vertical to horizontal, and gaining back the 3dB they have lost with the interim service from D1, that will give FreeView back the opportunity for a 'same polarity' transponder as Sky NZ.

Suppose FreeView ended up being placed on one of the transponders which serves NZ and Australia - an example being the present Sky NZ service into Australia on horizontal transponder 13 (12.519/12.546) ? The first problem, here, is that FreeView would also become available into Australia, creating a massive (not resolveable) problem with programme copyrights. Australia is extremely protection-minded about the importation of any programming from outside the country and FTA service from New Zealand would be a non-starter from the first day. This raises the possibility that if FreeView was given no choice but to be on a transponder providing service



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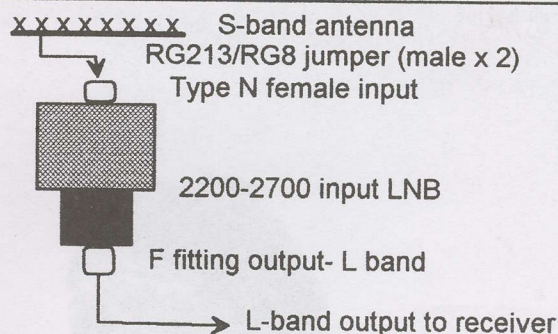
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Internal discussion memos - What the 'best informed' believe has happened; A 'Summary' as it were  
**Editor's note:** Not everyone is as confused as some seem to be. Here we share two "internal memos" as written by one high level participant, two weeks apart: November 15 and December 1.

**15 November:** It is a bit clearer now. D1 has a design capability for 8 transponders covering 12.25-12.75 for NZ coverage only. This effectively replaces the B1 transponders and should have the same polarisation - so-called 'Polarisation A' one sees in the B series design guide found on the Optus web site.

D1 also has a capability to switch further transponders to cover NZ on the alternate polarisation (B pol). The arrangement is that 4 transponders (12.25>12.45 approximately) are switchable to Australia alone, or to both Australia and NZ (power split 80% to Australia, 20% to NZ). A further 4 (12.45>12.75 approximately) will switch to either Australia alone or NZ alone.

So if the 'in orbit' polarisation configuration is effectively reversed, Sky which did use a bit of Trs 4 and 5 to 8 on B1 simply uses the new D1 on the same transponders but in the switched (NZ only) mode. But if more than 4 transponders are required for Sky, the 80/20 power split would reduce the EIRP to NZ vis-a-vis the NZ only coverage. In the short term, no other issues should arise, for NZ, but of course the NZ only transponders cannot serve Australia so the medium term needs to see a solution where the NZ-only transponders are used in NZ, whatever polarisation they must use. This will release transponders planned for Australia (or switched to NZ) for other planned uses.

Looking only at NZ and assuming all other things are fine on D1 (ie. it is just a polarisation switch), Sky can operate as normal but capacity expansion (as promised by the most recent Sky stockholder report) would be at somewhat reduced power levels; link margins would be reduced with more rain outages on those expanded channels, only. Medium term, Sky must get their receiving antennas realigned, possibly accelerating their single LNB to dual LNB replacement program. This would give Sky their desired configuration of being able to switch to 156 (C1/D2) or 160 (D1), either polarisation. It appears Sky may have as many as 400,000 homes to visit for LNB change out; even at \$30 a home that comes to \$12,000,000 out of pocket. Realistically, this could take 12 months or more (312 work days with 6 day work weeks is 1,282 change-outs per day; at 8 per-man per-day becomes 160 guys doing nothing but changing out LNBs for one full year).

As for TVNZ, they need to know what polarity their FreeView service will operate on, and it may need to promote dual pol switching LNBs at 160 to give them the flexibility to change (and in the future expand). Their April 7th in-house start-up date looks unmanageable at this time (this would presumably be on D1 using the highest power capacity [ie. the so-called "A" polarisation - which is actually reversed to "B"]). This would or could be different to Sky's present installations (remember the LNB change outs ongoing) and therefore the prospect of allowing Sky subscribers to access the new TVNZ programmes is complicated in the short term.

**December 1:** The plot seems clear enough - TVNZ remains on B1 while Sky is now operating from D1. Why???  
Read on!

Sky have contracts for the NZ-only D1 transponders on a given polarisation but Optus are supplying Sky by using the four switchable transponders (capable of either Australia or New Zealand) because of the polarisation mistake during construction. This is not an immediate problem to Sky - their signals are still arriving on the ground although perhaps not as planned nor with the on ground signal levels anticipated.

Meanwhile, Optus is no longer in a position to offer TVNZ/Freeview/NZ only' D1 capacity on the same polarisation as Sky because there are only 4 transponders with Australia or NZ switchable capability and Sky is using ALL 4.

On this same polarisation (vertical, supposed to be "A" but in fact "B") the remaining 4 transponders are Australia-only, or, Australia + New Zealand. It is very unlikely Australia would allow TVNZ/Freeview to broadcast (FTA) into their country - the choice if the Australia + NZ ("A") beam were selected.

TVNZ's other alternative is to accept a cross polarised transponder with a NZ-only beam. But this means Sky's subscribers (who in the majority may have a LNB that is 'fixed' or frozen on one polarity - the wrong one for TVNZ) could not see the TVNZ transmissions on the opposite polarisation. So it appears TVNZ/Freeview might be snookered in their satellite ambitions for a while yet - unless ...

TVNZ does a swap with Sky so Sky broadcasts to Australia and NZ - and using their NDS encryption Sky is not likely to transgress Australia satellite laws/policies. But such agreements have to be negotiated, and the engineering will take some time to make right. In the interim, TVNZ is forced to maintain an increasingly difficult link with a rapidly wider fight path for B1.

**Editor's note:** And that dear reader is where the excrement hits the fan - TVNZ is going to progressively lose coverage through B1 for a large portion of the country; see our 'Comment' on page 1, here.

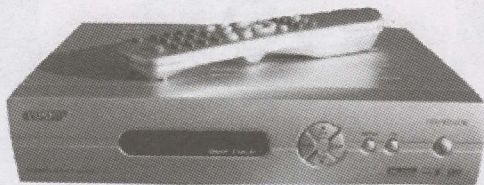
to both countries, FreeView would be forced to become not-FreeView; the Australian Aurora service is an example of this. If it were 'protected' from casual fortuitous viewing by adopting some form of encryption, supported by a one-time purchase of a long-term conditional access card (such as with Aurora), a measure of legal control would then be possible, to limit if not eliminate widespread viewing in Australia.

The Irdeto-1 format CA cards sold in Australia for Aurora retail in the A\$100 region - arriving at Optus Aurora for under A\$20 each. Unfortunately, that is only a portion of the cost associated with CA. To build into a receiver a CA processing

system requires licensing of the format by the owner; Irdeto, NDS, Nagravision or another. And FreeView is already struggling with the spiraling cost of FreeView receivers equipped with MPEG-4 and (not yet announced but now very likely) MHEG-5. Each of these software functions cost fees for licensing; fees which when CA + MPEG-4 + MHEG-5 are added together and then the wholesale one-time cost of the card is included, makes consumer pricing of FreeView receivers for under \$300 very unlikely. None of this is making the final decisions for FreeView's start-up any easier on the folks who want to make it a competitive service to Sky NZ.



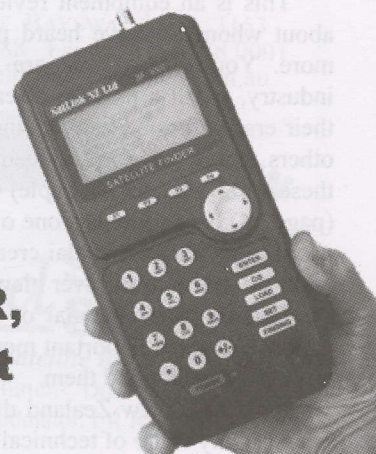
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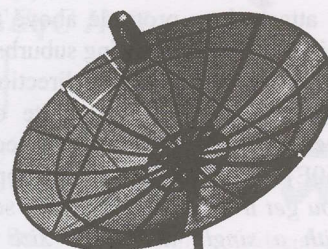
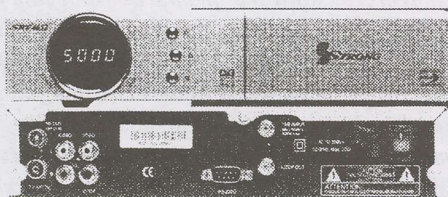
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This is about a new receiver -

## Sort of - Actually, it is about attitude

This is an equipment review - specifically from Hyundai about whom we have heard precious little for five years or more. You may, if you are a medium-timer in this crazy industry, recall a number of early Hyundai models which for their era performed well enough but always - like virtually all others - were never *quite* ready for mass-marketing. Some of these (HSS700, for example) still appear in our product list (page 26) here. Perhaps one of the kindest things you can say about these early Hyundai creations is that (to the best of our knowledge), "not one ever blew up and killed the user."

That was the Hyundai of old. There is a newer, kinder, gentler and most important more responsive Hyundai in Korea now. And John found them.

"John" is a New Zealand distributor of satellite products - one of a tiny cadre of technically smart people who lingers just below the Peter Escher brand of notoriety doing good things for grateful clients. "John" doesn't get much publicity and his products receive even less credit. We intend to correct that, here.

We were interested in John's MaxPlus line of STBs and he casually mentioned one day on the telephone some work he was doing with Hyundai. *"Do you remember them?"* he asked. We did, not with any special fondness. *"I'd like you to try a new FTA model which I have been working on with their factory for a few months now"* he continued. We agreed - testing receivers is what we do, not always best but usually with enthusiasm. And our respect for John and his SatMax product was high so if he suggested "this" Hyundai was unusually clever - well, "courier it up" said we.

### The perfect marriage with Moteck?

As you have read - will read - on pages 1 and 9 here, there is an evil clique of do-gooder government bureaucrats now focusing their beady eyes on how TV aerials/antennas are becoming a blight on the visual landscape of our cities and suburbs. If these overpaid and under worked creator of lifetime useless positions of officialdom had their way, nothing would stick up from your roof line but birds perched on the peak. There would be no antennas of any kind; anyplace. For anything. One can hypothecate that these bureaucrats are being paid under the table by the likes of Telecom to end forever access to the world through anything but a buried piece of copper/fibre cable; the "antennas are evil" crowd.

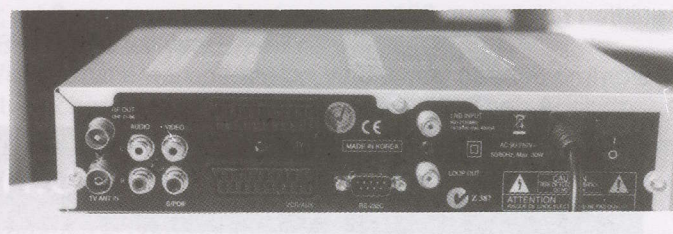
Their (see page 9) plan is to greatly limit the (1) size, (2) position on or near the home, (3) number/quantity of items that are attached to, protrude above the Council restricted height limitations in our growing suburbs.

As a major step in that direction, by limiting "TV reception aerials" (inclusive of satellite dishes), folks like Sky and Freeview, using a common geostationary satellite location (160E) strengthen their monopoly on information access. "You get it all from 160/156E" seems to be the sub-plot here; "with a single dish of a size which precludes you from wandering away to other satellite locations."

Well, there are some technical solutions to this bureaucratic frenzy - one dish for multiple satellites is one such answer (see



Hyundai HSS-760A is unique because the factory actually listened to Beta-level users before rushing product into the marketplace. The beauty of this one is in how it works, not the labels on the front (nor the connectors on the rear).



page 29 here, and SF#149 in January). There is another of course - one that dates back to 1981 (trust us) but which has never really taken off in the South Pacific; one dish and a tracker system composed of a motor sitting under the dish, a stable mount to keep everything from moving in the wind, and inside of the receiver (or external in a separate metal container) a suitable power supply to power the motor and creative software to tell the motor where to direct the dish - one satellite at a time.

John is from the "motorised dish" crowd and his firm (which totally uniquely we will not name here!) specialises in Moteck dish mover systems (and mounts), and receivers which supply the required motor power plus dish movement software instruction. Some background.

Hyundai created the HSS-760A and was searching for someone with appropriate skills (and honesty) to tell them whether it - the receiver - was ready for mass production. John was their guinea pig and this turned out to be a wise choice for the Korean firm, because John was much more interested in a fool-proof receiver with no quirks than he was in rushing to market with an imperfect product.

John: *"They sent me some Beta test models and I found a number of problems - software primarily and almost all related to the DiSeqC 1.2 marriage to the Moteck motor."* It helped that John had already created a distributorship relationship with the Moteck folks and was (mid-year 2006) having his share of early client user problems.

John: *"The motor system is exceptional, capable they claim of any 1.2m dish or smaller - although I am more conservative than they are and urge clients to stick to 1.1m and down. I don't think the factory for the motors has ever tested one inside of an abrupt New Zealand weather front change!"*



It would take months, 8 complete series of software changes, before John was ready to give Hyundai's new product his personal stamp of approval.

*"We posted the latest software upgrade on our amateurish web site ([www.nzljohn.co.nz](http://www.nzljohn.co.nz)) only on December 4th. At the same time I gave Hyundai my green light to proceed with production of this model."*

As you read these words, the first 5,000 units are on the way to Europe with a smaller quantity in transit to John-in-New Zealand.

*"I have to say that the present (generation) of engineers at Hyundai are totally unique - where most engineers are under intense pressure to get a new product into production and out the door, these fellows have been extremely interested in getting it right before the first major production run. My trickle of Beta test receivers has in turn gone into the field to selected users, people I know will be critical, even demanding, of how the package works."*

The "package" here is the marriage to the Moteck motorised system; one dish, any satellite, all software controlled.

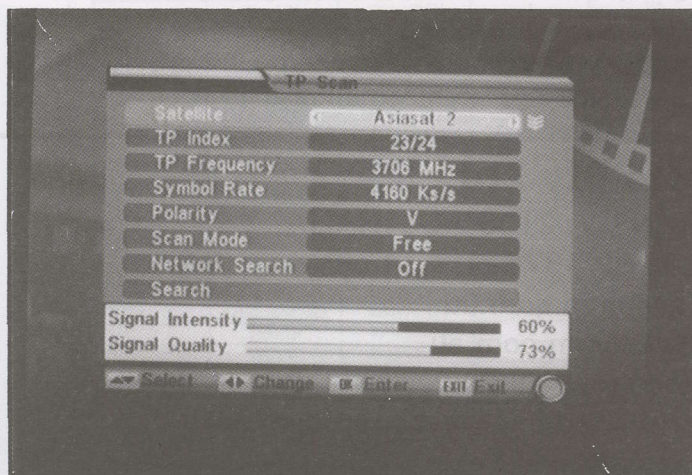
*"Using DiSEqC 1.2, the installer-user can locate each satellite, memorise using the remote control menu the position of each and when this is done, each satellite is merely one-button entry away. Using the newer (web site available) DiSEqC 1.3, it is even simpler - locate just one satellite (such as D1) and then turn the software loose and it will locate and memorise automatically all of the (Ku band) satellites the dish can locate."*

It does not get much more mistake-proof than this.

*"I know this business has been filled with manufacturers who create products and ship before they are mature, and then release updates for the web. But Hyundai in this instance has followed a totally different track - they wanted all of the imperfections fixed before there was a production run. I started off with some minor suggestions, and they came back with some minor software corrections. We did this eight times, each exchange becoming more and more focused on the correctness of the solutions and problems. By December 4th, when I web-site posted the final updates, I knew we had the best motor drive receiver product in the industry."*

So there you have it - SatFACTS has located not merely a quality receiver but a quality guy who takes an unusual interest in perfection; something others could adopt. How do you find this mystery man? In New Zealand at (64) (9) 262 1997 or through [www.nzljohn.co.nz](http://www.nzljohn.co.nz).

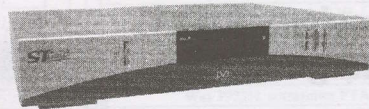
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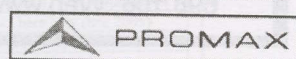
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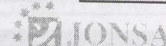
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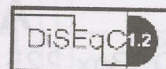
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**Along the way** we have found that above all else, customer support is critical. If you look around the industry, you'll soon sort out those vendors who operate on a strictly commercial basis, and, those who really have your real hobby interests at heart.

**That's why we have made it our priority** to give you all of the information to help you make your hobby a success. So if you are contemplating Satellite TV as a hobby, give us a call; we'll help get you off on the best track. Who knows - you might even become a part of this growing industry!! You can count on our decades of experience to provide you with the best "right" solution at an affordable price.

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(Av-Comm Pty Ltd ACN 004 174 478)



# SatFACTS Pacific/Asian MPEG-2 Digital Watch: 18 Dec, 2006

| Bird          | Service             | RF/IF<br>&Polarity                | # Program<br>Channels | FEC | Msym    |
|---------------|---------------------|-----------------------------------|-----------------------|-----|---------|
| Thcm5/78.5    | SkyChAust           | 3695/1455H                        | up to 3               | 3/4 | 5(000)  |
|               | ANT Greece          | 3672/1478H                        | 1 TV                  | 3/4 | 13(333) |
|               | TARBS ME mux        | 3640/1510H                        | 12TV, 12 radio        | 2/3 | 28(066) |
|               | Ch Nepal            | 3626/1524V                        | 1                     | 3/4 | 15(556) |
|               | Mahar mux           | 3600/1550H                        | 11TV, 1 rad           | 3/4 | 26(667) |
|               | RR Sat mux          | 3551/1600H                        | 8TV, 10 radio         | 3/4 | 13(333) |
|               | TVK Cambodia        | 3448/1702H                        | 1TV                   | 1/2 | 6(312)  |
|               | TARBS/Th5           | 3480/1670H                        | 12 TV+radio           | 2/3 | 26(667) |
|               | Thai Global         | 3425/1725V                        | up to 7?              | 2/3 | 27(500) |
| InSat 2E/83   | ETV mux             | 4005/1145V                        | 6+ TV                 | 3/4 | 27(000) |
|               | Hyd Dig 2E          | 3910/1240V                        | 1                     | 3/4 | 5(000)  |
|               | Kairali TV          | 3699/1451V                        | 1                     | 3/4 | 3(184)  |
|               | Indian mux          | 3643/1507V                        | 3                     | 3/4 | 19(531) |
|               | Sky Bangla          | 3430/1720V                        | 1TV                   | 3/4 | 6(000)  |
| NSS6/95E      | Ant Pac (Greek)     | 11 104H-Australia                 | 1 TV                  | 3/4 | 2(800)  |
| As2/100.5E    | Guangdong TV        | 4075/1075H                        | 1TV + radio           | 3/4 | 6(000)  |
|               | Euro Bouqt          | 4000/1150H                        | 5TV, 19 radio         | 3/4 | 28(125) |
|               | SatLink             | 3960/1190H                        | 3TV                   | 3/4 | 27(500) |
|               | Reuters News        | 3905/1245H                        | 1TV                   | 3/4 | 4(000)  |
|               | WorldNet            | 3880/1270H                        | 4+18radio             | 1/2 | 20(400) |
|               | APT Asia            | 3799/1351H                        | 1                     | 3/4 | 5(632)  |
|               | Reuters/Sing.       | 3775/1375H                        | 1                     | 3/4 | 5(631)  |
|               | Macau MUX           | 4148/1002V                        | 5TV                   | 3/4 | 11(850) |
|               | Dubai MUX           | 4020/1430V                        | 4+, radio             | 3/4 | 27(500) |
|               | Russian/Israel      | 3832/1318V                        | up to 4 video         | 3/4 | 7(271)  |
|               | ArabSat#2           | 3820/1330V                        | 8+ video?             | 3/4 | 27.5    |
|               | Trace TV            | 3792/1358V                        | 1                     | 3/4 | 2(400)  |
|               | BYU-TV              | 3767/1383V                        | 1 + 20 audio          | 1/2 | 6(530)  |
|               | 3-ch miniMUX        | 3752/1398V                        | up to 3               | 3/4 | 5(640)  |
|               | Saudi TV1           | 3660/1490V                        | 7+tests               | 3/4 | 27(500) |
| Express2/103E | Various-tests       | 3675/1475R                        | 2                     | 3/4 | 4(340)  |
| As3S/105E     | Chinese regionals   | 3671/1471V                        | 2                     | 3/4 | 8(932)  |
|               | CETV digital        | 3680/1470H                        | 1+ TV                 | 3/4 | 26(670) |
|               | Zee bouquet         | 3700/1450V                        | 10TV                  | 3/4 | 27(500) |
|               | Ch News Asia        | 3706/1444H                        | 1TV (+)               | 3/4 | 6(000)  |
|               | Azio TV             | 3716/1434H                        | 1TV (+)               | 3/4 | 7(000)  |
|               | BT World            | 3725/1425V                        | 1TV                   | 3/4 | 4(450)  |
|               | TVB 8               | 3729/1421H                        | 1TV                   | 3/4 | 13(650) |
|               | Zee Movies          | 3732/1418V                        | 3TV                   | 3/4 | 6(500)  |
|               | TV One              | 3739/1411V                        | 1TV                   | 3/4 | 2(8934) |
|               | SAB TV              | 3743/1407V                        | 1TV                   | 3/4 | 3(300)  |
|               | Fashion TV          | 3747/1403V                        | 1TV                   | 3/4 | 2(625)  |
|               | AAJ-TV              | 3750/1400V                        | 1TV                   | 3/4 | 2(820)  |
|               | Arirang TV          | 3755/1395V                        | 1                     | 7/8 | 4(418)  |
|               | Now TV +            | 3760/1390H                        | up to 10TV            | 7/8 | 26(000) |
|               | Star TV             | 3780/1370V                        | 7(+TV)                | 3/4 | 28(100) |
|               | GXTV                | 3806/1344V                        | 1TV + 3 radio         | 3/4 | 4(420)  |
|               | Shaanxi TV          | 3813/1337V                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Anhui TV            | 3820/1330V                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Jiangsu TV          | 3827/1330V                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | HLITV               | 3834/1316V                        | 1TV                   | 3/4 | 4(420)  |
|               | Star TV             | 3840/1310H                        | 7(+TV)                | 7/8 | 26(850) |
|               | Star TV             | 3860/1290V                        | 5(+TV)                | 3/4 | 27(500) |
|               | Dragon TV           | 3886/1264V                        | 1 TV                  | 3/4 | 4(800)  |
|               | Shaanxi TV          | 3895/1255V                        | 1TV + 6 radio         | 3/4 | 6(813)  |
|               | CCTV1               | 3904/1246V                        | 1TV, 1 radio          | 7/8 | 4(420)  |
|               | Jilin TV            | 3914/1236V                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Star TV             | 3920/1230H                        | 4+ TV                 | 7/8 | 26(850) |
|               | CNNI                | 3960/1190H                        | 8TV, 1 radio          | 3/4 | 27(500) |
|               | StarTV              | 3980/1170V                        | 6+TV                  | 3/4 | 28(100) |
|               | Star TV             | 4000/1150H                        | 8(+TV)                | 7/8 | 26(850) |
|               | Sahara digital      | 4020/1130V                        | 8TV, 1 radio          | 3/4 | 27(250) |
|               | Hubei TV            | 4035/1115H                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Tianjin TV          | 4046/1104V                        | 1TV + 2 radio         | 3/4 | 5(950)  |
|               | Sichuan TV          | 4051/1099H                        | 1TV + 1 radio         | 3/4 | 4(420)  |
|               | Qinghai TV          | 4067/1083H                        | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Hunan TV            | 4082/1068H                        | 1TV + 1 radio         | 3/4 | 4(420)  |
|               | Fashion/HK-Asia     | 4088/1062H                        | 1TV                   | 3/4 | 2(626)  |
|               | Pakistani TV        | 4091/1059V                        | 4TV, 1 radio          | 3/4 | 9(330)  |
|               | Sun TV              | 4095/1055H                        | 1                     | 3/4 | 5(554)  |
|               | PTV National        | 4106/1044V                        | 1TV, 1 radio          | 3/4 | 3(333)  |
|               | TVB8 Mux            | 4111/1040H                        | 4 TV                  | 3/4 | 13(650) |
|               | Indus News          | 4115/1035V                        | 1                     | 3/4 | 3(331)  |
|               | CCTV bqt            | 4129/1021H                        | 4 TV, 4 radio         | 3/4 | 13(240) |
|               | Zee Bqt #2          | 4140/1010V                        | 8(+TV)                | 3/4 | 27(500) |
|               | Henan TV            | 4166/984V                         | 1TV + 8 radio         | 3/4 | 4(420)  |
|               | Fujian TV           | 4180/970V                         | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Jiangxi TV          | 4187/963V                         | 1TV + 2 radio         | 3/4 | 4(420)  |
|               | Liaoning TV         | 4194/956V                         | 1TV + 2 radio         | 3/4 | 4(420)  |
| Cak1/107.5    | Indovision (S-band) | 2,535, 2,565, 2,595, 2,625, 2,655 | 33(+TV)               | 7/8 | 20(000) |
| T'Kom/108E    | IndoBqt             | 3460/1690H                        | up to 6               | 3/4 | 28(000) |
| C2M/113E      | TPI                 | 4185/965V                         | 1                     | 3/4 | 6(700)  |
|               | Anteve              | 4144/1006V                        | 1                     | 3/4 | 6(510)  |
|               | Kabelvision Mux     | 4080/1070H                        | 7+ TV                 | 7/8 | 28(125) |
|               | Indostar            | 4074/1076V                        | 1                     | 3/4 | 6(620)  |
|               | SCTV                | 3934/1216H                        | 1                     | 3/4 | 6(620)  |
|               | Indo MUX            | 3880/1270H                        | 3+ TV                 | 7/8 | 28(121) |
|               | TVRI                | 3765/1385H                        | 1TV                   | 3/4 | 5(555)  |

## Receivers and Errata

|                                                    |
|----------------------------------------------------|
| CA (#1, 3); FTA audio #2                           |
| Late July 04: room for more (FTA)                  |
| CA + 23FTA(A1TV, IRB3, Vision Norge, Pakistan)     |
| New 03/03; FTA                                     |
| Thai + Indian services; FTA inc. Vibe TV, Sindh TV |
| 3TV, Sradio inc. Hellas TV Greece FTA              |
| FTA                                                |
| 3FTA: TV5, VTV4, ATN Bangla                        |
| FTA (reaches SE Australia)                         |
| Several ETV now here; wide beam                    |
| SCPC, OK E. Aust. wide beam                        |
| SCPC, OK E. Aust wide beam                         |
| corrections 12/02                                  |
| New - November 2002                                |
| Now CA; was 11.083H                                |
| July 04: FTA                                       |
| FTA TV + radio; Russia,Port,Spain, Italy/Euro Bqr  |
| Real Madrid (V769, A770) English FTA               |
| Was 3923H; sometimes FTA                           |
| FTA; multiple audio services V2360, A2320          |
| Sometimes FTA; also 3895Vt                         |
| FTA & CA                                           |
| 5 chs TV, FTA, some tests                          |
| FTA ; Dubai Sports Ch some English, soccer-        |
| Two Israel, two Russian (REN-TV)                   |
| New 107-06; initially parallel As3S 3.880H         |
| new here Dec 2004; Euro-French music videos        |
| Increased coverage; great variety audio chs(03-05) |
| Sun-TV, Surya TV, KTV (FTA)                        |
| FTA MCPC, Yemen, MBC EUROsport tests               |
| Now loaded from 96.5E; svrl below 3900 all RHC     |
| New 07-06; Yanbian, Jilin Satellite TV             |
| replaces analogue same freq; V33, A32              |
| Now SECA 2 CA (10-04); Radio Aust Eng A2011        |
| English + V1160, A1120; 525, 625 versions          |
| Was parallel to 3640Hz analogue (now gone)         |
|                                                    |
| Conax CA, all Hindi films                          |
| Also reported 3.333, ¼ October 2005                |
| SAB may no longer here here; moved to NSS-6?       |
| new frequency October 2005                         |
| New April 2005; English, urdu                      |
| FTA SCPC; New PIDs V3601, A3606 June 2003          |
| CA + FTA, DW, TV5 here now (late 2005)             |
| NDS CA (Pace DVS211, Zenith)                       |
| Guangxi TV; was As2                                |
| Was As2                                            |
| Was As2                                            |
| Was As2                                            |
| Was As2; HeiLong                                   |
| NDS CA (Pace DVS211, Zenith)                       |
| NDS CA (Pace DVS211, Zenith)                       |
| Shanghai                                           |
| Apparently Mongolia                                |
|                                                    |
| PowVu CA; new SR Apr 29; CNN radio FTA             |
| NDS CA; Star News India FTA VPID 514, APID 648     |
| NDS CA w/ 4(Chinese) FTA                           |
| New Sr September 2004                              |
| Was As2                                            |
| new December 2004                                  |
| Was As2                                            |
| Was As2                                            |
| Was As2                                            |
| Was As2                                            |
| New July 2005                                      |
| new Sr, channels, April 2006                       |
| "History Channel" - SCPC, some English             |
|                                                    |
| MATV Ch Movies now Irdeto 1                        |
| Hindi (+ "Plus"); day parts                        |
| moved from 4115                                    |
| Now SECA 2 CA (10-04); 1 occ. FTA (varies)         |
| Was As2                                            |
| Was As2                                            |
| Was As2                                            |
| Was As2                                            |
| NDS CA using RCA/Thomson,                          |
| Pace IRDs; 2,535 has 2 FTA. Bird now inclined.     |
| also 3586H/17,500, 3496H/19,615                    |
| FTA SCPC; NT/NC only                               |
| change from 4055V; FTA SCPC                        |
| also try 3500H, 27,000, 3/4; strong NZ             |
| New (but probably temporary) 07-06                 |
| FTA, may not be active full time                   |
| FTA; Sr change 01/03; erratic                      |
| bounces btwn FTA and CA; unreliable (12-04)        |



| Bird     | Service           | RF/IF & Polarity | # Program Channels  | FEC       | Msym        |
|----------|-------------------|------------------|---------------------|-----------|-------------|
|          | SCTV              | 3726/1424V       | 1TV                 | 3/4       | 6(,620)     |
|          | RCTI              | 3473/1677H       | 2                   | 3/4       | 8(,000)     |
| As4/122E | CCTV internal     | 4100/1050V       | 6                   | 3/4       | 27(,500)    |
| Jc3/128  | Miracle Net       | 3996/1154V       | 3 up to 6           | 5/6       | 22(,000)    |
|          | Asian bqt         | 3960/1190V       | up to 8             | 7/8       | 30(,000)    |
| Ap6134E  | Multiple          | 4140/1010V       | up to 8             | 7/8       | 27(,500)    |
| T18/138  | Tests             | 3460/1690V       | 8                   | 3/4       | 30(,000)    |
| Am3/140  | STS +             | 3731/1419R       | 1                   | 3/4       | 3(,200)     |
| Jc2A 154 | BYU-TV            | 3915/1245V       | 1+ 20 languages     | 3/4       | 4(,166) (?) |
| MeasSs2  | Astro Mux         | 11.602H          | up to 17TV          | 3/4       | 41(,500)    |
| B3/152   | 7 Cent. Feed      | 12.310H          | 1TV                 | 3/4       | 5(,100)     |
|          | AuroraBiz         | 12.407V          | 4 TV, 10 radio      | 2/3       | 30(,000)    |
|          | UBI               | 12.425V          | up to 13 TV + radio | 3/4       | 22(,500)    |
|          | Globecast 2       | 12.525V          | 13 TV, 8 radio      | 2/3       | 30(,000)    |
|          | Globecast (feeds) | 12.550-555V      | 1TV                 | 3/4 & 2/3 | 6(,110/670) |
|          | Globecast         | 12.564V/T13      | 2+ TV               | 2/3       | 30(,000)    |
|          | UBI               | 12.613H/T14L     | 11+TV               | 3/4       | 22(,500)    |
|          | UBI               | 12.640H/T14U     | 11+TV               | 3/4       | 22(,500)    |
|          | Globecast 1       | 12.658V/T7       | 14TV, 15 radio      | 2/3       | 30(,000)    |
|          | UBI               | 12.674H/T15L     | 11+TV               | 3/4       | 22(,500)    |
|          | UBI               | 12.701H/T15U     | 11+TV               | 3/4       | 22(,500)    |
|          | WA ABC            | 12.702V          | 1 TV, 1 radio       | 7/8       | 14(,288)    |
|          | WA SBS            | 12.720V          | 4TV, 2 radio        | 5/6       | 12(,600)    |
|          | WA GWN/WIN        | 12.738V          | 2TV                 | 7/8       | 14(,295)    |
| C1/156E  | Aurora            | 12.324V/T1U      |                     |           |             |
|          | Pay TV            | 12.365V/T2       | 11TV, 2 radio       | 3/4       | 27(,800)    |
|          | Aurora Home       | 12.407V/T3       | 5 TV, 13 radio      | 2/3       | 30(,000)    |
|          | Pay-TV            | 12.447V/T4       | 5TV, 4 data         | 3/4       | 27(,800)    |
|          | Pay TV            | 12.487V/T5       | 3+ TV, data         | 3/4       | 27(,800)    |
|          | Aurora 2          | 12.527V/T6       | 7TV, 20 radio       | 3/4       | 30(,000)    |
|          | Pay-TV            | 12.567V/T7       | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.607V/T8       | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.647V/T9       | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.692V/T10L     | 6TV, 27 radio       | 1/2       | 28(,650)    |
|          | Aurora MUX        | 12.728V/T10U     | 4TV, 17 radio       | 1/2       | 24(,450)    |
|          | Austar            | 12.305H/T11      | 6TV, 24 data        | 3/4       | 30(,000)    |
|          | Pay-TV            | 12.358H/T12      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.398H/T13      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.438H/T14      | 6TV, 3 data         | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.478H/T15      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.518H/T16      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.558H/T17      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay TV            | 12.598H/T18      | 10 TV               | 3/4       | 27(,800)    |
|          | Pay-TV            | 12.638H/T19      | 10TV, 30 radio      | 3/4       | 27(,800)    |
|          | Pay TV            | 12.688H/T20      | 11TV                | 3/4       | 22(,500)    |
| B1/160   | TVNZ              | 12.483V          | 9 TV                | 3/4       | 22(,500)    |
| D1/160E  | Sky NZ test       | 12.420V          | TV +                | 3/4       | 22(,500)    |
|          | SBS SE            | 12.451H          | TV+                 | 5/6       | 12(,600)    |
|          | Sky NZ            | 12.519V          | TV+                 | 3/4       | 22(,500)    |
|          | Sky NZ test       | 12.519H          | TV+                 | 3/4       | 22(,500)    |
|          | ABC NSW           | 12.514H          | TV                  | 7/8       | 14(,294)    |
|          | ABC South         | 12.532H          | TV                  | 7/8       | 14(,294)    |
|          | ABC Northern      | 12.550H          | TV                  | 7/8       | 14(,294)    |
|          | ABC Western       | 12.577H          | TV                  | 7/8       | 14(,294)    |
|          | ABC Victoria      | 12.595H          | TV                  | 7/8       | 14(,294)    |
|          | ABC Qld           | 12.613H          | TV                  | 7/8       | 14(,294)    |
|          | Southern Cross    | 12.637H          | TV + 1 radio        | 3/4       | 5(,100)     |
|          | Sky NZ Test       | 12.644V          | TV                  |           |             |
| P8/166E  | SelecTV           | 12.526H          | 8+TV                | 3/4       | 28(,800)    |
|          | CCTV              | 12.557H          | 3+TV                | 3/4       | 13(,240)    |
|          | ABS-CBN           | 12.575H          | 4+TV, 4+ radio      | 2/3       | 13(,845)    |
|          | MYSAT             | 12.646H          | up to 8 TV          | 3/4       | 28(,066)    |
|          | JEDI/TVB          | 12.686H          | 11+ TV              | 3/4       | 28(,126)    |
|          | PnGlobal Aust     | 12.726H          | 6+TV                | 3/4       | 28(,066)    |
|          | ABC A-P           | 4180/970H        | 2TV, 2 radio        | 3/4       | 27(,500)    |
|          | Disney Pac        | 4140/1010H       | typ 6 TV            | 5/6       | 28(,125)    |
|          | Taiwanese MUX     | 4080/1070H       | 12+ TV              | 5/6       | 30(,000)    |
|          | NHK Joho          | 4060/1090H       | 7TV, 1 radio        | 1/2       | 16(,180)    |
|          | FOX Mux           | 4040/1110V       | up to 5TV           | 7/8       | 26(,470)    |
|          | NET +             | 4121/1029V       | 1 TV                | 3/4       | 4(,774)     |
|          | ESPN USA          | 4020/1130H       | 8+TV, data          | 3/4       | 26(,470)    |
|          | Discovery         | 3980/1170H       | 8 typ               | 3/4       | 27(,690)    |
|          | CalBqt/Pas8       | 3940/1210H       | up to 3+ FTA        | 7/8       | 27(,690)    |
|          | CNBC HK           | 3900/1250H       | up to 7TV           | 3/4       | 27(,500)    |
|          | FilipinoMUX       | 3880/1270V       | up to 8TV+radio     | 5/6       | 28(,694)    |
|          | TaiwanBqt         | 3860/1290H       | 12TV + 30 r         | 5/6       | 28(,000)    |
|          | CCTV Mux          | 3829/1321H       | up to 4 + 1 radio   | 3/4       | 13(,240)    |
|          | TVBS-N            | 3836/1314V       | 1FTA, 4+ CA         | 3/4       | 17(,500)    |
|          | EMTV PNG          | 3808/1342V       | 1 + 2 radio         | 3/4       | 5(,632)     |
|          | CNNI              | 3780/1370H       | 3, up to 5 TV       | 3/4       | 25(,000)    |
|          | Discovery Asia    | 3764/1386V       | Up to 6 TV          | 3/4       | 19(,850)    |
|          | MTV               | 3740/1410H       | 8                   | 2/3       | 27(,500)    |
| P2/169E  | WA Mux Pv         | 12.281V          | 3+ TV, radio        | 2/3       | 27(,500)    |
|          | Ariang TV         | 12.401V          | 1TV                 | 3/4       | 4(,400)     |
|          | ABS-CBN           | 12.575H          | 4TV, 2 radio        |           | 13(,845)    |
|          | Test mux          | 12.715H          | 6+ TV               | 2/3       | 30(,000)    |
|          | TARBS feeds       | 4090V/1060V      | 9TV + radio         | 3/4       | 21(,000)    |
|          | BBC SCPC          | 3986/1164H       | 1TV                 | 1/2       | 5(,700)     |
|          | Middle East       | 3836/1314V       | 4 typ               | 3/4       | 13(,331)    |

## Receivers and Errata

was on 4048V; New Caledonia, parts of Australia  
 FTA SCPC, or, 3774H, 6.520, 3/4 (June 06)  
 Irdeto 2; 4060V HDTV CA; also try 4020V  
 PowerVu; some FTA (Ch. 1 & 3)  
 CA & FTA NTSC: Japan, Taiwan  
 (ApStar 6: also 4180V same #s, some analogue also)  
 also try 3660/3540V, Sr 30,000, 3/4; some FTA  
 North beam; also try 3875R, 12.475, 1/2  
 Strong NZ & Australia, may now be 1/2, 6.525  
 Aust East beam - 3 FTA + 14 CA  
 Was B1, moved June 2006, concerns B1 failures  
 differs from 12.407 CL; tune ch FTA; NZ+Au  
 Now Irdeto V2  
 NZ + Au, FTA + Mcript CA  
 occ feeds, NZ + Au; recently 12.553V  
 AMTV, Healing only FTA svcs now here  
 High performance beam; not NZ; new CA 07-06  
 High performance beam; not NZ; new CA 07-06  
 NZ + Au (Mcript, PowVu capable)  
 High performance beam; not NZ; new CA 07-06  
 High performance beam; not NZ; new CA 07-06  
 ABC WA tests, FTA  
 SBS, radio tests WA FTA  
 Irdeto V2 CA, tests (GWN, WIN)  
 not currently in use  
 Tests; SBS-NDS CA, others FTA when here  
 NZ (90cm) + Australia (Only CI svc left on NZ)  
 Australia NA only (leakage to Norfolk, New Cal)  
 Australia NA only (leakage); 9-Net x 3 widescreen  
 Arrow radio (still here), tone FTA  
 Pay-per-view movies; CA  
 Pay-per-view movies; CA  
 Pay-per-view movies; CA  
 ABC for Foxtel/Austar; previously 12.288V  
 changes September 2005  
 Austar inter; Expo FTA  
 NDS CA + Mcript; CA  
 CA, subscriptions available Australia, Norfolk  
 Sky News active; 'Help x 2' FTA  
 CA, subscriptions avail Au, Nrlk, TVSN FTA  
 CA, subscriptions available Australia, Norfolk  
 "Home"CA, subscription available Australia, Nrlk  
 CA, subscriptions available Australia, Norfolk  
 CA, subscription available Australia, Norfolk  
 CA, subscription available Australia, Norfolk  
 B1 figure 8 elliptical; some tracking required  
 Au + NZ beam  
 +12.469H/Qld, 12.487H/South,  
 +12.546V, 12.581V, 12.608V, 12.644V: NZ only  
 +12.546H: NZ only  
 Australia only  
 Australia only  
 Australia only  
 Australia only  
 Australia only  
 Australia only  
 Australia only  
 +12.671V, 12.707V, 12.734V: NZ only  
 & 12.286, 12.326; FTA prev. 526 V10112, A1012  
 FTA-Australia  
 CA -Australia  
 FTA V=5340, A=790 -Australia  
 June 2002-Irdeto-2 CA - Australia  
 Some FTA-Australia  
 Dateline west; also east PAS2, 3901V  
 PowVu CA  
 Tests - CA service announced  
 PowVu CA & FTA; sub available-changes 05-06  
 was PAS-2, previously 3992Vt, feeds FTA  
 NET25 + FTA; new PIDS April '03; reload  
 PowVu CA, ch 11 DCP-CCP bootload, audio FTA  
 PowVu/CA (some audio FTA)  
 PowVu CA & FTA (EWTN + CBS + TBN +)  
 NDS CA (6 channels); one test card occ FTA  
 Myx FTA V1960, A1920 + radio FTA  
 Mixed FTA & CA; STC gone (CA)  
 PowVu FTA, replaces PAS-2 svc  
 CCTV cross pole; new SR 04-06  
 PowVu CA  
 PowerVu; some audio FTA  
 PowerVu; Asian MUX; new parameters Nov '03  
 # 8 MTV China FTA V289, A290; rest CA  
 PowVu CA, WIN, ABC NT, SBS; status unknown  
 Test - may not stay permanently  
 Temp FTA; subs Aust 011-800-2270-0722  
 initially with 6 NTSC colour bars  
 Occ FTA (Chile +); BIG power reduction Nov 03  
 BBC World moved here January 2005  
 Subscriptions available; Strong Technology

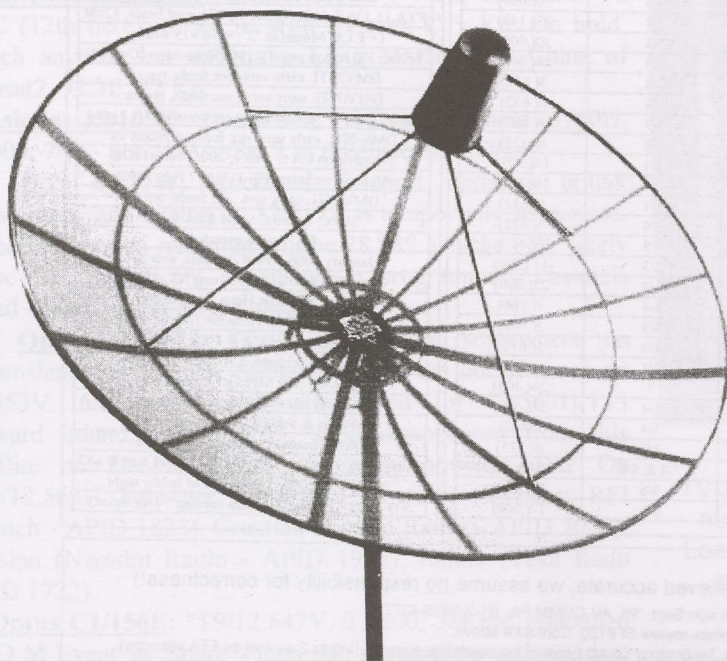




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SATELLITE**

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# **ANTENNA & RECEIVER SUPERMARKET**



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suitable for  
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Fax: (03) 9886 8787

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**Ph: +61 7 3344 3883 Fax: +61 7 3344 3888**

Email: [info@psau.com](mailto:info@psau.com) <http://www.psau.com>



| Bird        | Service           | RF/IF & Polarity | # Program Channels | FEC       | Msym            |
|-------------|-------------------|------------------|--------------------|-----------|-----------------|
| (PAS2/169E) | Adventists.tv     | 4040/1010H       | 1                  | 2/3       | 5( 900)         |
|             | Feeds             | 3868/1182H       | 1                  | 2/3       | 6( 620)         |
|             | Feeds             | 3939/1211H       | 2 (typ NTSC)       | 2/3       | 6( 620)/7( 498) |
|             | Cal PowVu         | 3901/1249H       | up to 8            | 3/4       | 30( 800)        |
|             | HK bouquet        | 3850/1300H       | up to 8            | 2/3       | 24( 900)        |
|             | Korean Bqt        | 3771/1379H       | 1                  | 3/4       | 6( 510)         |
| AMC23/172E  | Various-tests     | 12 730H          | up to 8            | 3/4       | 30( 000)        |
| 1804/174E   | iPSTAR            | 12 619H          | 1                  | 2/3       | 25( 220)        |
|             | Tests-NZ beam     | 12 646H          | 1                  | 3/4       | 22( 418)        |
|             | RFO Poly          | 4027/1123R       | 1TV                | 3/4       | 4( 566)         |
| 1701/180E   | TNTV              | 11 060&11 514V   | 9                  | 3/4       | 30( 000)        |
|             | TVRFO             | 11 136V, 11 174V | 6+TV, 3+ radio     | 3/4       | 23( 149)        |
|             | Canal+Sat         | 11 610H          | 16TV, 1 radio      | 3/4       | 30( 000)        |
|             | PBS               | 12 648HH         | 16TV possible      | 3/4       | 28( 066)        |
|             | TVNZ/BBC          | 4186/964RHC      | 1                  | 3/4       | 5( 632)         |
|             | TVNZ              | 4178/972RHC      | 1                  | 3/4       | 5( 632)         |
|             | AFRTS DTS         | 4175/975L        | 3 TV, 3 radio      | 2/3       | 3( 680)         |
|             | TVNZ/Aptn         | 4170/980RHC      | 1                  | 3/4       | 5( 632)         |
|             | Fiji Sky Pacific  | 4095/1055LHC     | 6TV + future radio | 3/4       | 16( 505)        |
|             | Fiji Sky Pacific  | 4055/1095LHC     | 7TV + future radio | 3/4       | 16( 505)        |
|             | TVNZ/feeds        | 4052/1098RHC     | 1                  | 3/4       | 5( 632)         |
|             | TVNZ feeds        | 4044/1106R       | 1                  | 3/4       | 5( 632)         |
|             | NBC to 7 Oz       | 3960/1190R       | 1                  | 7/8       | 6( 447)         |
|             | TBN Mux           | 3927/1223R       | 4TV                | 2/3       | 11( 394)        |
|             | WorldNet          | 3886/1264R       | 1TV, 37 radio      | 3/4       | 25( 000)        |
|             | Ioarana           | 3772/1378L       | 1                  | 3/4       | 4( 566)         |
|             | NASA TV           | 3854/1296R       | 1 TV               | 3/4       | 2( 000)         |
|             | TVNZ              | 3846/1304R       | 1                  | 3/4       | 5( 632)         |
|             | NBA (Barker) Ch   | 3803/1347R       | 1                  | 3/4       | 6( 111)         |
|             | USA feeds         | 3749/1401R       | 4?                 | ?         | 26( 400)        |
| NSS-5/177W  | Pacific IP Data   | 3763/1387R       | none-data          | 3/4       | 2( 893)         |
|             | RFO/Tempo         | 3920/1230R       | 1                  | 3/4       | 6( 525)         |
|             | BYU-TV            | 4185/965R        | 1TV, 20+ audio     | 1/2       | 14 294 & 12.600 |
|             | Australia Temp.   | 12 522V          | 8 SCPC             | 7/8 & 5/6 | 28( 989)        |
|             | Auckland Teleport | 12 612V          | New Mux 01/07      | 5/6       | 17( 600)        |
|             | iPSTAR Tests      | 12 691V          | 8 TV               | 5/6       |                 |

| Receivers and Errata                                |
|-----------------------------------------------------|
| New December 2003; 24/7 "Hope Chs."                 |
| FTA (occ sport); also try 3863, Sr6.100             |
| FTA-typ NTSC-occ sport, live Shuttle                |
| PowVu CA + FTA (includes BBC-W 05-05)               |
| was 4148Vt; some FTA                                |
| Korean MUX, reload 12-04; new Sr                    |
| Testing on NZ/East Australia beam                   |
| Tests, late May start; also 12.646H                 |
| Testing possible data links; June 2003              |
| SE spot beam; was 4027LHC                           |
| east spot; 10TV + r each, vertical pol.             |
| FTA 11.136 Tahitian beam; 11.174 west beam; 12/04   |
| 1+ FTA, MediaGd "2"; + 10.975 weaker                |
| Testing Fiji region pay-TV (MDS) package (Oct '04)  |
| DMV/NL early vers. occ feeds, typ ca                |
| DMV/NL early vers. occ feeds, typ ca                |
| 'DTS Direct to Sailors, audio previously FTA - gone |
| DMV/NL early vers. occ feeds, typically ca          |
| Nagravision CA (> Feb 1, 2005) New PIDS             |
| All now (including Fiji 1) CA; 7 Feb. 2005          |
| DMV/NL early vers. occ feeds, typ ca                |
| SCPC, mixed CA and FTA feeds                        |
| CA, Leitch encoded                                  |
| January 2006-now 4 channels, new Sr                 |
| New PIDS Dec 03 very strong NZ, Pacific             |
| FTA SCPC, East Hemi Beam-Tahiti                     |
| 24/7 live NASA - West Hemi bm (can be difficult!)   |
| SCPC, mixed CA & FTA, feeds                         |
| NBA feeds - probably CA - new Nov 2003              |
| 16-QAM (not MPEG-2 compatible)                      |
| Data only but useful for dish alignment             |
| Wallis & Futuna Island(s) service                   |
| Global beam - requires sizeable dish                |
| Aust beam: 12.522, 538,555,574,604,621,639 & 657    |
| NEW Sept 2006; Tuesday 8PM hobby night              |
| CA Tests - Taiwan TV; data coming?? (NZ beam)       |

## MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99, AV-COMM P/L, 61-2-9939-4377.

AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.

Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Phoenix Technology Group ([www.phoenixsatellite.com.au](http://www.phoenixsatellite.com.au)) (Irdeto 2 as well as FTA versions)

Coship FTA, CA, HDD. Review SF#143, state of art functions, blind search. Phoenix (above), Satlink NZ, fax 64-9-814-9447.

Divitone: "Left-handed" review SF#115; does "code key" entry. Available <http://www.satmax.ws>

eM-Tech eM-100B (FTA), eM-200B (FTA + Chk2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)

eM-150/Homecast. FTA + embedded multi-format, review SF#144. Sciteq (61-8-9409-6677) and Kristal (61-7-4728 7704)

Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. [www.aDigitalLife.com](http://www.aDigitalLife.com)

Homecast (em-150, eM-1150, eM-2150) series of FTA, CA, HDD sate of art STBs, review SF#144. Sciteq ([www.sciteq.com.au](http://www.sciteq.com.au))

Humax ICR1 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04. SF#76.

Humax ICR1 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq ([www.sciteq.com.au](http://www.sciteq.com.au)).

Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good.

Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.

Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality Irdeto. Available Phoenix TechnologyGroup, and Satmax (<http://www.satmax.ws>).

ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.

KSF-570 FTA digital receiver, import; KSC-570 adds CI x 2 (no test or user results available). Asoft Limited, 64-4-234-1096

KSC-N550H2 'Premium Dual DVR' digital receiver (no test or user results available). Asoft Limited, 64 4 234 1096

MediaStar D7.5. New (May 00) single chip FTA; review June 2000 SF. MediaStar Comm. Int. 61-2-9618-5777 ([www.mediastar.com.au](http://www.mediastar.com.au))

MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.

MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738

Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.

Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. [SatWorld 61-3-9773-9270 \(www.satworld.com.au\)](http://www.satworld.com.au)

Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced.

Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).

Phoenix 111, 222, 333 models (no longer produced). Service, backup - Phoenix Technology Group 61 3 9553 3399; [www.phoenixsatellite.com.au](http://www.phoenixsatellite.com.au)

Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)

PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).

PowTek. Blind Search Chinese sourced, field tests rate it highly. Source [jason@adigitalife.com](mailto:jason@adigitalife.com)

Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.

SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)

SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.

SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at [tim@dmsiusa.com](mailto:tim@dmsiusa.com).

SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).

Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superseded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481. John Martin

Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).

Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.

Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSeq 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.

UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.

UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.

UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.

UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.

"X" Digital. When modified with "aftermarket" Internet software, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

**Accessories:**

Aurora smart cards. MCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.

PowerVu Software Upgrade. PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

PowerVu (Pacific) repair service. Cable & Sat Svcs, Darius West, 61-2-9792-1421 (Email [darius@cases.net.au](mailto:darius@cases.net.au))



# WITH THE OBSERVERS

**Satellite Launches:** Measat 3, via Proton, December 11 UTC (12th here); to 91.5E with 24 each C + Ku. On hold, launch anytime but uncertain: Long March from China of Sinosat2, 92.3E, 22 Ku.

**AsiaSat 3S/105E:** Correction: Al Jazeera is here (3760H, 26.000, 7/8) - not on AsiaSat 2 as mis-listed in SF#147.

**NSS 6/177W:** Auckland Teleport updating uplink transmitters and testing on 12.612V is temporarily suspended. Probable Sr when returning will be 28.989 and the FEC likely to be 5/6. Significant expansion in programming channels ahead - January and early February.

**Optus B3/152E:** "Live feeds from somewhere on Queensland coast to UK ('Celebrity - get me out of here') on 12.553V, 6.670, 3/4 and reprocessed for 12.563H/T13 outward bound. Imparja's B3 feed disappeared from this satellite on 20 November - possibly now on D1? On T13/12.563H here are no four FTA radio services: RFI (French - APID 1822), Croatian (Cronat Radio - APID 2022), Russian (Narodni Radio - APID 1922), Italian (Teke Rado APID 1722).

**Optus C1/156E:** "T9/12.647V, 27.800, 3/4 has relabelled 'FBO M Event' as 'Spare' - data rate suggests no active video. T15/12.478H, 27.88, 3/4 was originally '955' - Foxtel's adult channel. Now relabelled 'FBO M Event' and it shares the PID numbers as 'Main' (V1041, A1042).

**Optus D1/160E:** Southern Cross Central is on 12.637H - for now. SBS SE mux 12.451H; Queensland 12.469H, South Mux 12.458H - all Sr 12.600, 5/6.

**PanAmSat PAS8/166E:** Now under Intelsat ownership, PAS-8 has officially become Intelsat 8 (IS-8).

**PanAmSat PAS2/169E:** Under new ownership by Intelsat, PAS-2 is now Intelsat 2 (IS-2).

**Note:** SatFACTS January will be dated the 22nd for our printer, like Clayworth (below) takes an extended holiday at this time of year!

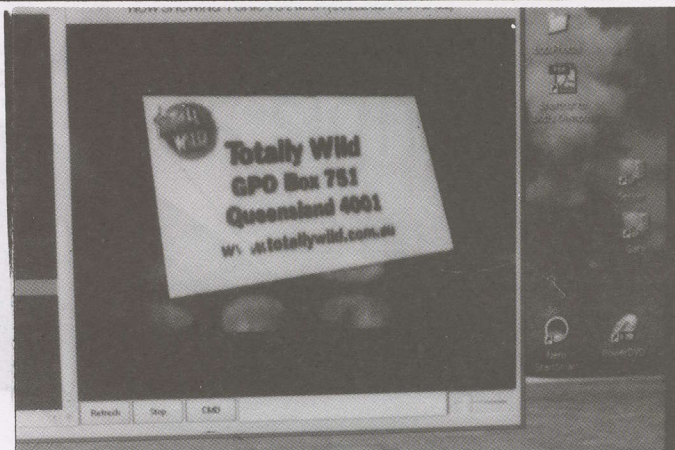
**Soapbox:** Clayworth Electronics (Auckland supplier of installation hardware; 09 444 9393) closes for month (December 22 to January 22 reopen).

"SelectTV advertising makes no promotional mention of their sport channel service which appears to be limited to Real Madrid (24 hour soccer).

France has launched a twin-channel all-news service which they hope will improve the acceptance of the 'French View' world-wide. 'France 24' is run by commercial channel TF1 and

## AT PRESS DEADLINE

TVNZ's dilemma! FreeView is 'scheming' how to avoid covering Australia with FTA. One option being considered: D1 vertical with (NDS) CA so Sky boxes work for FreeView, and, a second transponder on D1 Hz without CA (for NZ only) for FTA boxes not Sky (supported). *Fun times!*



Australian TV10 has been hiding away on the TVUPlayer web site ([www.tvunetworks.com](http://www.tvunetworks.com)) although not always of good quality nor under its real name. Loading is, well, seldom smooth and more often than not it is video without audio. But it is on the web world-wide - sort of!

government owned France Television. One channel is essentially all in French as one would expect while the second is majority-English with occasional scheduled slots in other languages, including French.

A free to use wireless Broadband service is to be trialled in portions of Sydney - modelled perhaps after similar city-run services in places such as San Francisco. On the opposite side of that coin, Canberra is introducing an 'Interstructure Tax' which will cost anyone with broadband A\$137 per year.

A new 'Digital Switchover' funded by A\$20m is now planned to encourage viewers to adopt digital reception technology in Australia. "The government does not want any community or household to be left without access to the benefits of digital TV" reads the report; "we recognise that some Australians may find it difficult to make the switch to digital due to personal circumstances or geographical locations." Estimates that 23% of Australian homes now have access to digital neglect to explain how Austar-Foxtel-Optus satellite and cable "digital" numbers are counted in summary.

Kordia/BCL begins testing band 3 (high band VHF) 9 programme channel digital radio as you read this; Auckland and Wellington; yes, this is the 'UK DAB plan' where HD radios are currently selling for under \$NZ150.

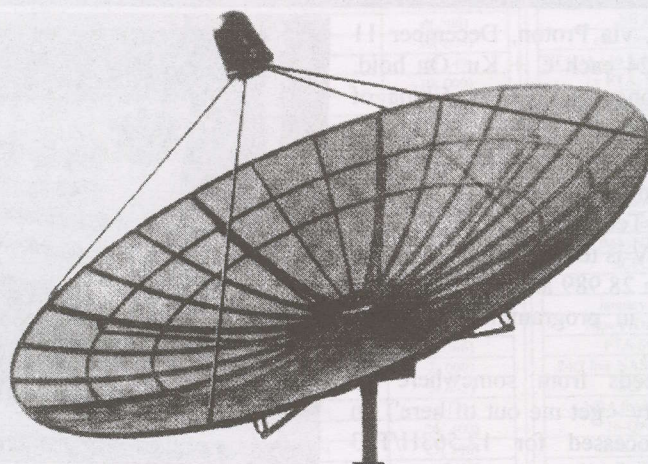
**WITH THE OBSERVERS:** Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. **Photos of yourself, your equipment** or off-air photos taken from your TV screen **are welcomed**. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady.

Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for January 19th issue: January 9th by mail or 5PM NZST January 10th if by fax to 64-9-406-1083 or

Email [skyking@clear.net.nz](mailto:skyking@clear.net.nz).



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Heavy Duty Frame with Strong Mesh

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Both C and Ku Band: 2-13GHz

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<http://www.joysat.com> email: [info@joysat.com](mailto:info@joysat.com)

[joysat@bigpond.net.au](mailto:joysat@bigpond.net.au)

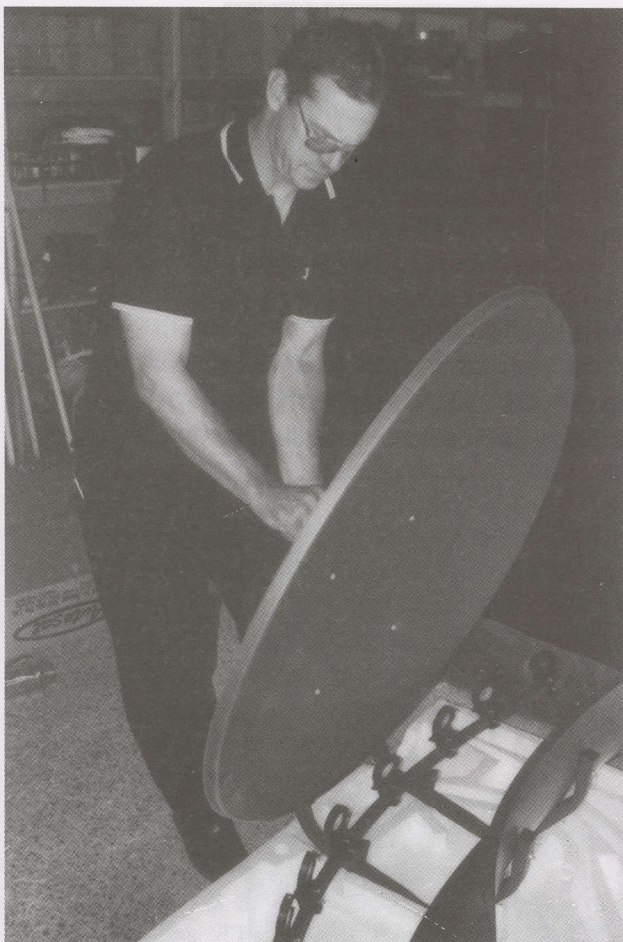


If local governments ban installation  
of multiple TV (and FM) reception  
antennas (\*) -

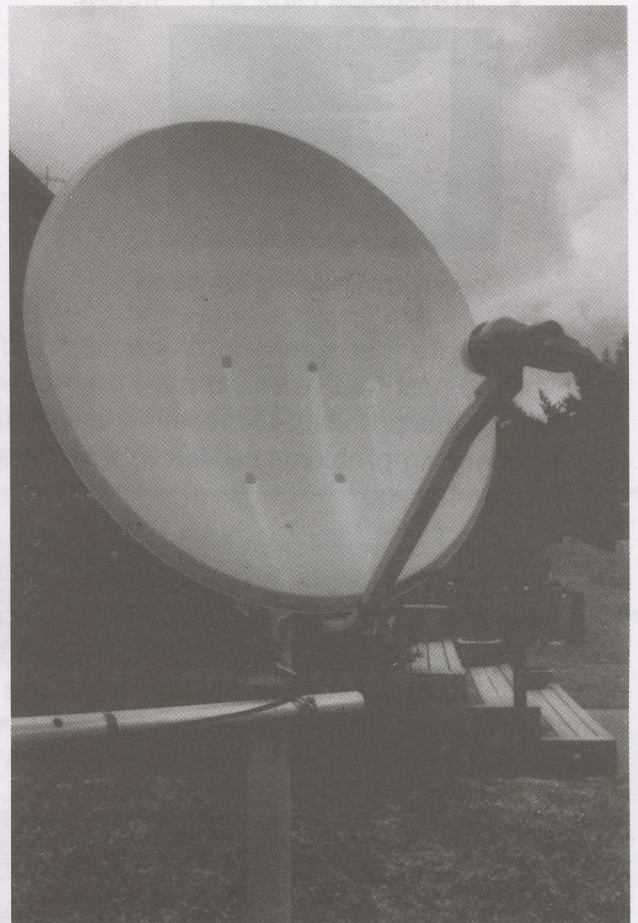
\* -

## Controls on aerials signalled

See report on page 9, here



WOULD ONE OF  
THESE ...



...SUITABLY REPLACE  
SEVEN OF THESE???

PART ONE: "The bureaucratic squeeze"

SatFACTS January 22, 2007





## Av-Comm Pty Ltd

### Satellite Television Equipment Specialists

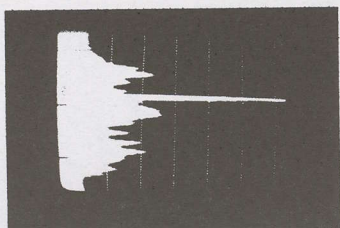
Ph - 02 9939 4377 Fax - 02 9939 4376

Website - <http://www.avcomm.com.au>

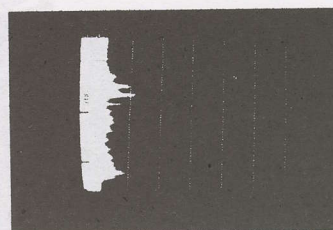
Email - [cgarry@avcomm.com.au](mailto:cgarry@avcomm.com.au)

Since late 2004 broadband interference in the C-band satellite spectrum has been ever present in the Sydney metropolitan area wiping out an estimated 10,000 C-band viewers as well as many commercial sites. This interference caused by Unwired Australia has now spread to Melbourne. To fight this interference, Av-Comm has designed a range of products to allow customers to continue using C-band systems.

- IF Filter 950-1450Mhz
- Dual Polarity 3.7 - 4.2Ghz LNB with 3.5Ghz Notch Filter
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- Waveguide Filter 3.7 - 4.2Ghz



Spectrum Showing Unwired



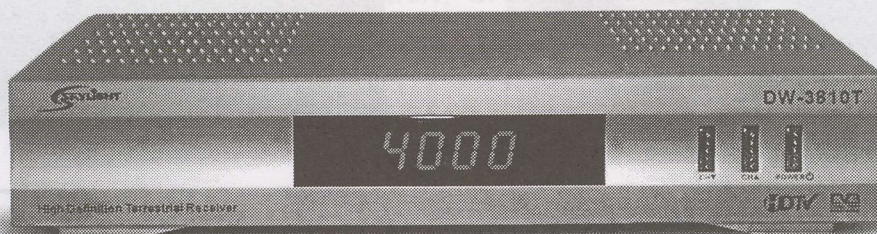
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As each site that suffers interference is different, there is no one fix for all affected sites but over the past two years we have developed many combinations to give you the best chance of beating this problem. Our commercial solutions have a 100% success rate. If you are experiencing problems caused by interference feel free to call us and we will help find the best solution for you.

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## *Sir Arthur C Clarke*

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'LESLIE'S HOUSE', 25, BARNES PLACE, COLOMBO 7, SRI LANKA  
PHONE: (9411) 2694 255, 2699 757, FAX: (9411) 2698 730

Bob Cooper  
P O Box 330  
Mangonui  
Far North  
New Zealand.

19 July 2006

Dear Bob,

Many thanks for the copy of *Television's Pirates* which has just arrived -- I can barely lift it!

I'm very glad you wrote your memoirs, because this is a fascinating collection of anecdotes and a vital part of the TV broadcasting and satellite communication history. It's a part that official writers and pure academic researchers may well underplay in their own accounts.

---

**"...a fascinating collection of anecdotes and a vital part  
of the TV broadcasting and satellite communication history."**

---

In October 1945, (Sir) Arthur C Clarke conceptualised geostationary satellites - the precise placement of earth-orbiting 'in place' satellites equipped with solar-refreshing powering systems and microwave relay equipment capable of receiving earth-originated transmissions and rebroadcasting these signals to earth. Clarke's hypothesis appeared in British publication "Wireless World" and attracted but limited response. World War Two was barely completed, microwave technology was little understood while rocketry - the essential ingredient required to launch into orbit "radio relay stations," an even less mature technology. But this was the origin of satellite TV and from this technology paper would come the direct-to-home television we all enjoy today. "**Television's Pirates: Hiding behind your picture tube**" traces this development focusing on the individual creators who made it all work - the people who turned Clarke's theory into reality.

---

Sir Arthur C. Clarke and more than 700 other individuals are featured in "Television's Pirates." This is the true story of how the entire world reacted when Clark's hypothesis became fact. A typical reader response:

"I received 'Television's Pirates' today and as today is my day off, I managed to read the first chapters. It is really great - I have never read anything so detailed on the television (reception) business. Additionally, my CATJ + CSD set of DVDs have also arrived; I have not been this fascinated in ages! I am torn between the CATJ and CSD features and completing Television's Pirates!"

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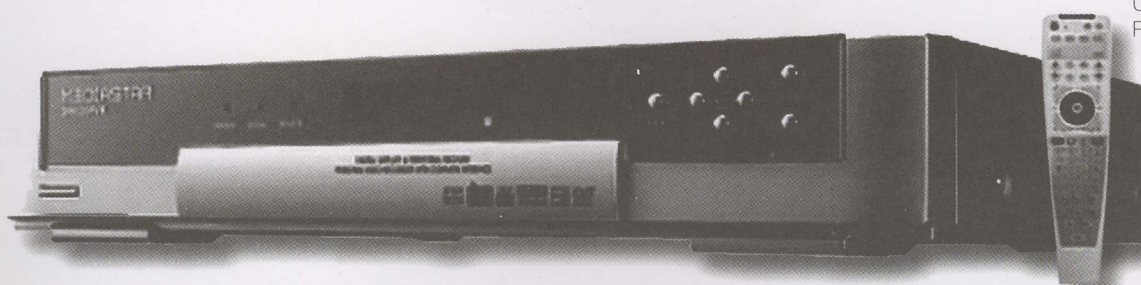
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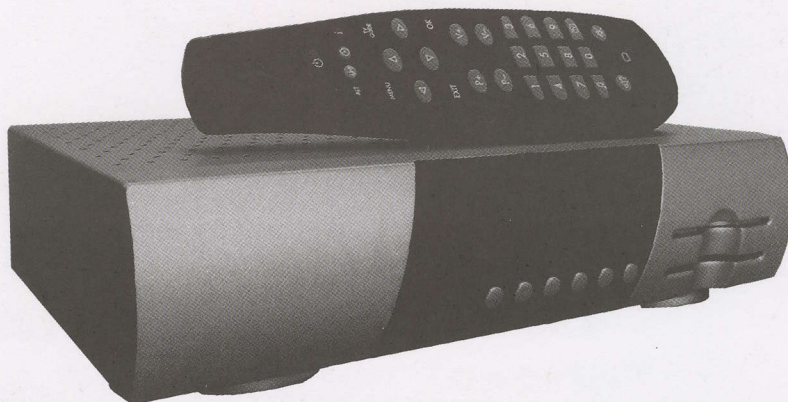
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